CSS Publications Activities

Vice-President

THOMAS PARISINI  *Imperial College London and University of Trieste*
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
IOANNIS PASCHALIDIS  *Boston University*
JEFF SHAMMA  Deputy Editor-in-Chief  *King Abdullah University of Science and Technology*
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
JONATHAN HOW  *Massachusetts Institute of Technology*
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
Scanning the Issue .................................................................................................................. 4841

REGULAR PAPERS

Relaxing Integrity Requirements for Attack-Resilient Cyber-Physical Systems ................. I. Jovanov and M. Pajic 4843
Observers for Linear Systems by the Time Integrals and Moving Average of the Output ................................................. L. Menini, C. Possieri, and A. Tornambè 4859
SuperMann: A Superlinearly Convergent Algorithm for Finding Fixed Points of Nonexpansive Operators ............................................................... A. Themelis and P. Patrinos 4875
Structural Controllability of an NDS With LFT Parameterized Subsystems ................................ Y. Zhang and T. Zhou 4920
On Fundamental Limitations of Dynamic Feedback Control in Regular Large-Scale Networks ........................................................................................................ 4936
Lattice-Filter-Based Multivariate Autoregressive Spectral Estimation With Joint Model Order and Estimation Bandwidth Adaptation ............................................. M. Abdelrahim, V. S. Dolk, and W. P. M. H. Heemels 4968
Robust Fault Detection and Set-Theoretic UIO for Discrete-Time LPV Systems With State and Output Equations Scheduled by Inexact Scheduling Variables ........................................... F. Xu, J. Tan, Y. Wang, X. Wang, B. Liang, and B. Yuan 4982
A Smooth Distributed Feedback for Formation Control of Unicycles .................................. A. Roza, M. Maggiore, and L. Scardovi 4998
Generalized Dual Dynamic Programming for Infinite Horizon Problems in Continuous State and Action Spaces ................................................................. J. Warrington, P. N. Beuchat, and J. Lygeros 5012
Resilient Reinforcement in Secure State Estimation Against Sensor Attacks With A Priori Information ................................................................. T. Shinohara, T. Namenikawa, and Z. Qu 5024
LMI Stability-Constrained Identification for Composite Adaptive Internal Model Control ..................................................................................................... Z. Qiu, J. Sun, M. Jankovic, and M. Santillo 5039
Supervisory Control of Probabilistic Discrete Event Systems Under Partial Observation . . . W. Deng, J. Yang, and D. Qiu 5051

(Contents Continued on Back Cover)
TECHNICAL NOTES

Delay-Dependent Energy-to-Peak Stability of 2-D Time-Delay Roesser Systems With Multiplicative Stochastic Noises

L. V. Hien, H. Trinh, and N. T. Lan-Huong

Input Estimation Over Frequency Region in Presence of Disturbances

J. Stefanovski and D. Juričić

On Sufficient Conditions for Mixed Monotonicity

L. Yang, O. Mickelin, and N. Ozay

Second-Order Fault Tolerant Extended Kalman Filter for Discrete Time Nonlinear Systems

X. Wang and E. E. Yaz

Linear Exponential Quadratic Control for Mean Field Stochastic Systems

J. Moon and Y. Kim

Structural Controllability of a Consensus Network With Multiple Leaders

M. K. Mehrabadi, M. Zamani, and Z. Chen

Common Knowledge and Sequential Team Problems

A. Nayyar and D. Teneketzis

Opacity of Nondeterministic Transition Systems: A (Bi)Simulation Relation Approach

K. Zhang, X. Yin, and M. Zamani

Robust $H_{\infty}$ Filtering for Two-Dimensional Uncertain Linear Discrete Time-Varying Systems: A Krein Space-Based Method

D. Zhao, S. X. Ding, H. R. Karimi, and Y. Li

Dynamic State Feedback Stabilization of Stochastic Cascade Nonlinear Time-Delay Systems With SISS Inverse Dynamics

X.-J. Xie and M. Jiang

Consensus of Heterogeneous Nonlinear Multiagent Systems With Duplex Control Laws

S. Yang, J. Wang, and Q. Liu

Distributed Continuous-Time and Discrete-Time Optimization With Nonuniform Unbounded Convex Constraint Sets and Nonuniform Stepsizes

P. Lin, W. Ren, C. Yang, and W. Gui

Regular Polygon Formations With Fixed Size and Cyclic Sensing Constraint

K. Fathian, N. R. Gans, W. Z. Krawciewicz, and D. I. Rachinskiı

Concurrent Learning Adaptive Control With Directional Forgetting

H.-I. Lee, H.-S. Shin, and A. Tsourdos

On Lyapunov and Upper Bohl Exponents of Diagonal Discrete Linear Time-Varying Systems

A. Czornik, A. Konyukh, I. Konyukh, M. Niezabitowski, and J. Orwat

Low-Complexity Tracking Control of Strict-Feedback Systems With Unknown Control Directions

J.-X. Zhang and G.-H. Yang

LQ Synchronization of Discrete-Time Multiagent Systems: A Distributed Optimization Approach

Q. Wang, Z. Duan, J. Wang, and G. Chen


L. Zou, Z. Wang, Q.-L. Han, and D. Zhou

Unified Approach to Convex Robust Distributed Control Given Arbitrary Information Structures

L. Furiere and M. Kamgarpour

Some Improved Razumikhin Stability Criteria for Impulsive Stochastic Delay Differential Systems

W. Hu, Q. Zhu, and H. R. Karimi

On Input-to-State Stability of Discrete-Time Switched Nonlinear Time-Varying Systems

G. Chen, Y. Yang, and J. Li

Consensus-Based Data-Privacy Preserving Data Aggregation

J. He, L. Cai, P. Cheng, J. Pan, and L. Shi

Initial Excitation-Based Iterative Algorithm for Approximate Optimal Control of Completely Unknown LTI Systems

S. K. Jha, S. B. Roy, and S. Bhasin

Network Scheduling and Control Co-Design for Multi-Loop MPC

K. Liu, A. Ma, Y. Xia, Z. Sun, and K. H. Johansson

Fault Diagnosis of Discrete Event Systems Under Unknown Initial Conditions

A. White, A. Karimoddini, and R. Su

Some Remarks on “State Estimation and Fault Diagnosis of Labeled Time Petri Net Systems With Unobservable Transitions”

Z. He, Z. Li, A. Giua, F. Basile, and C. Seatzu

Non-Gaussian Filter for Continuous-Discrete Models

M. Murata and K. Hiramoto

Multirate Sampled-Data Observer Design Based on a Continuous-Time Design

C. Ling and C. Kravaris

2019 INDEX

Available online at https://ieeexplore.ieee.org
28 Nonlinear System Identification
A user-oriented road map
JOHAN SCHOUKENS and LENNART LJUNG

Cover credit: A comparison of the complexity of the manifolds that linear and nonlinear models exist on, which impacts the whole identification process. Image courtesy of Johan Schoukens.
DEPARTMENTS

16 PEOPLE IN CONTROL
Anuradha Annaswamy
Li Wang
Iasson Karafyllis
Irena Lasiecka

100 BOOKSHELF
Modern Robotics: Mechanics, Planning, and Control
Book Announcements

104 CONFERENCE REPORTS
2019 American Control Conference
The 31st Chinese Control and Decision Conference
2019 IEEE Control Systems Society Workshop on Active Disturbance Rejection Control
The 2019 International Conference on Unmanned Aircraft Systems
The 27th Mediterranean Conference on Control and Automation
Workshop on Distributed Reinforcement Learning and Reinforcement-Learning Games

125 ACC PREVIEW
Attend the 2020 American Control Conference in Denver, Colorado

129 CONFERENCE CALENDAR

130 CSS BUSINESS
Minutes of the IEEE Control Systems Society Board of Governors Meeting

144 ON THE LIGHTER SIDE
Artificial Stupidity

MISSION STATEMENT AND SCOPE: As the official means of communication for the IEEE Control Systems Society, IEEE Control Systems Magazine 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 Magazine 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 or control technology, a tutorial on some area of control theory, or an innovation in control education.

IEEE Control Systems Magazine publications are available in a variety of formats. “Applications of Control” columns are oriented towards 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.ieeecss.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 Magazine website, https://css.paperplaza.net/conferences/scripts/start.pl, with inquiries on appropriateness of content emailed to jhow@mit.edu.

SPECIAL ISSUES: IEEE Control Systems Magazine 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 Magazine 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 MAGAZINE—(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$109.00. 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 01923, 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 © 2019 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 Magazine, IEEE, 445 Hoes Lane, Piscataway, NJ 08854 U.S.A. Canadian GST #129634188 Printed in U.S.A.
UPCOMING CONFERENCES

Conference on Decision and Control

CDC 2019

December 11–13, Nice, France

Invited Session Proposals Due:
  March 7, 2019 (Passed)

Initial Paper Submissions Due:
  March 15, 2019 (Passed)

Workshop Proposals Due:
  May 2, 2019 (Passed)

Paper and Workshop Decision Notification:
  Mid-July, 2019

Accepted Papers Due:
  September 10, 2019 (Passed)

http://cdc2019.ieeecss.org/
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 15, 2020

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 21, 2020

http://ccta2020.ieeecss.org/
Conference on Decision and Control

CDC 2020

December 8–11, Jeju Island, Republic of Korea

Initial Paper Due:
March 3, 2020

Invited Session Proposals Due:
March 10, 2020

Initial Paper Submissions Due:
March 17, 2020

Workshop Proposals Due:
May 1, 2020

Paper and Workshop Decision Notification:
mid-July, 2020

Accepted Papers Due:
September 10, 2020

http://cdc2020.ieeecss.org/