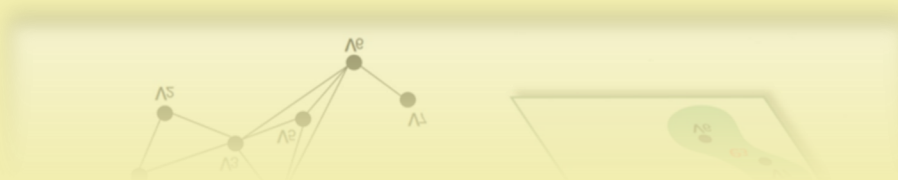
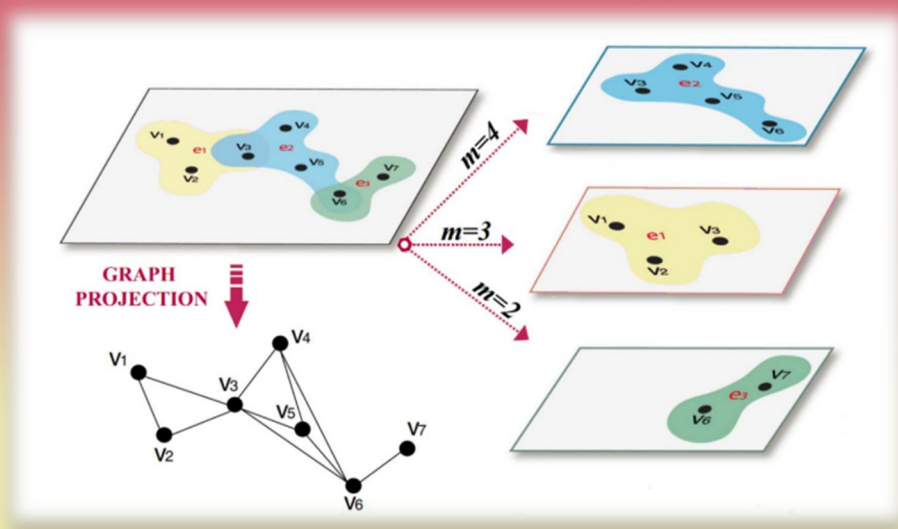


PUBLICATIONS CONTENT DIGEST



CSS Publications Activities

Vice-PresidentANDREA SERRANI *University of Bologna*<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

ILYA KOLMANOVSKY *University of Michigan*<http://ieeecss.org/publication/transactions-control-systems-technology>

IEEE Transactions on Control of Network Systems

LACRA PAVEL *University of Toronto*<http://ieeecss.org/publication/transactions-control-network-systems>

IEEE Control Systems Letters

LAURA MENINI *University of Rome “Tor Vergata”*<http://ieeecss.org/publication/control-systems-letters>

IEEE Control Systems Magazine

ANURADHA ANNASWAMY *Massachusetts Institute of Technology*<http://ieeecss.org/publication/ieee-control-systems-magazine>

IEEE Open Journal of Control Systems

SONIA MARTINEZ *University of California, San Diego*<http://ieeecss.org/publication/open-journal-control-systems>**Electronic Information**

CSS State-Space Forum

FABIO PASQUALETTI *University of California, Riverside*<https://state-space.ieeecss.org>***Submission and editorial instructions can be found on each publication's homepage**

IEEE TRANSACTIONS ON AUTOMATIC CONTROL

A PUBLICATION OF THE IEEE CONTROL SYSTEMS SOCIETY



OCTOBER 2025

VOLUME 70

NUMBER 10

IETAA9

(ISSN 1558-2523)

REGULAR PAPERS

Automatic Implementation of Neural Networks Through Reaction Networks—Part I: Circuit Design and Convergence Analysis	<i>Y. Fan, X. Zhang, C. Gao, and D. Dochain</i>	6356
Automatic Implementation of Neural Networks Through Reaction Networks—Part II: Error Analysis	<i>Y. Fan, X. Zhang, C. Gao, and D. Dochain</i>	6372
Automatic Nonlinear MPC Approximation With Closed-Loop Guarantees	<i>A. Tokmak, C. Fiedler, M. N. Zeilinger, S. Trimpe, and J. Köhler</i>	6388
A Game-Based Approach to Distributed Least-Distance Formation Tracking With a Moving Target	<i>J. Shi, M. Ye, L. Ding, S. Xu, and Q.-L. Han</i>	6404
Design of Distributed Nonlinear Observers Without Using Global Inputs	<i>G. Cao, J. Wang, and M. M. Polycarpou</i>	6420
A Successive Convexification Approach for Robust Receding Horizon Control	<i>Y. Lishkova and M. Cannon</i>	6436
Distributed Kalman Filter With Ultimately Accurate Fused Measurement Covariance	<i>T. Yang, J. Qian, Z. Duan, and Z. Sun</i>	6449
Distributionally Robust Infinite-Horizon Control: From a Pool of Samples to the Design of Dependable Controllers	<i>J.-S. Brouillon, A. Martin, J. Lygeros, F. Dörfler, and G. Ferrari-Trecate</i>	6465
Riemannian Online Optimistic Algorithms With Dynamic Regret	<i>X. Wang, D. Yuan, Y. Hong, Z. Hu, L. Wang, and G. Shi</i>	6481
An Investment Framework for Continuous Time Opinion Dynamics on Networks	<i>S. Dhamal, W. Ben-Ameur, and T. Chahed</i>	6497
Inverse Noncooperative Games With Indistinguishable Observations	<i>Y. Li and L. Xie</i>	6513
Robust Data-Driven Predictive Control for Unknown Linear Systems With Bounded Disturbances	<i>K. Hu and T. Liu</i>	6529
Integrating Obfuscation and Control for Privacy	<i>A. Wintenberg, N. Ozay, and S. Lafortune</i>	6545
Approximate Solution of Stochastic Infinite Horizon Optimal Control Problems for Constrained Linear Uncertain Systems	<i>E. Joa and F. Borrelli</i>	6561
Distributed Constrained Optimal Coordination of Multiple Heterogeneous Systems Over a Directed Communication Network	<i>C. Xian, Y. Liu, Y. Zhao, G. Wen, and G. Chen</i>	6577
Learning With Delayed Payoffs in Population Games Using Kullback–Leibler Divergence Regularization	<i>S. Park and N. E. Leonard</i>	6593
Decentralized Online Regularized Learning Over Random Time-Varying Graphs	<i>X. Zhang, T. Li, and X. Fu</i>	6609
Stabilization of Infinite-Dimensional Systems Under Quantization and Packet Loss	<i>M. Wakaiki</i>	6625
Classification of Stochastic Systems: Deep Learning and Hypothesis Testing	<i>Q. Zhang, X. Ma, and G. Yin</i>	6641
Distributed Resilient Interval Observer Synthesis for Nonlinear Discrete-Time Systems	<i>M. Khajenejad, S. Brown, and S. Martinez</i>	6656

(Contents Continued on Page 6355)



Learning Regions of Attraction in Unknown Dynamical Systems via Zubov–Koopman Lifting: Regularities and Convergence	<i>Y. Meng, R. Zhou, and J. Liu</i>	6672
Algorithm to Find New Identifiable Reparameterizations of Parameteric Rational ODE Models	<i>N. Meshkat, A. Ovchinnikov, and T. Scanlon</i>	6688
Resilience for Distributed Consensus With Constraints	<i>X. Wang, S. Mou, and S. Sundaram</i>	6704
Global and Local Error-Tolerant Decentralized State Estimation Under Partially Ordered Observations	<i>D. Sun, C. N. Hadjicostis, and Z. Li</i>	6719
Performance Analysis of Distributed Filtering Under Misspecified Noise Covariances	<i>X. Lyu, G. Wen, L. Shi, P. Duan, and Z. Duan</i>	6735
Optimal Parameter Selection for ADMM: Quadratically Constrained Quadratic Program	<i>H.-N. Nguyen</i>	6751
Formation Under Communication Constraints: Control Performance Meets Channel Capacity	<i>Y. Chen, Y. Cong, X. Zhou, L. Cheng, and X. Wang</i>	6767
Leader–Follower Density Control of Spatial Dynamics in Large-Scale Multiagent Systems	<i>G. C. Maffettone, A. Boldini, M. Porfiri, and M. di Bernardo</i>	6783
Equilibrium Selection in Replicator Equations Using Adaptive-Gain Control	<i>L. Zino, M. Ye, G. C. Calafiore, and A. Rizzo</i>	6799
On the Stability, Economic Efficiency, and Incentive Compatibility of Electricity Market Dynamics	<i>P. You, Y. Jiang, E. Yeung, D. F. Gayme, and E. Mallada</i>	6815
Safe Control of Multiagent Systems via Low-Complexity Control Barrier Functions	<i>X. Min, S. Baldi, Y. Shi, and W. Yu</i>	6831

TECHNICAL NOTES

Descent ILMI Algorithm for $D'-D'' H_\infty^B$ -Controller	<i>J. Stefanovski</i>	6846
Quantized Distributed Nonconvex Optimization Algorithms With Linear Convergence Under the Polyak–Łojasiewicz Condition	<i>L. Xu, X. Yi, J. Sun, Y. Shi, K. H. Johansson, and T. Yang</i>	6853
Model Reference Adaptive Stabilizing Control for Leader-Following Consensus	<i>D. Yue, J. Shi, L. Shi, P. Frasca, and S. Baldi</i>	6861
A Dual Accelerated Method for Online Stochastic Distributed Averaging: From Consensus to Decentralized Policy Evaluation	<i>S. Zhang, A. Pananjady, and J. Romberg</i>	6869
A Fully Parallel Distributed Algorithm for Nonsmooth Convex Optimization With Coupled Constraints: Applications to Distributed Consensus-Based Optimization and Distributed Resource Allocation	<i>S. S. Alaviani, A. G. Kelkar, and U. Vaidya</i>	6877
Estimation in Networks With Spatiotemporally Correlated Noise	<i>S. Jahandari and J. Shaman</i>	6885
Reduced-Order Gaussian Processes for Partially Unknown Nonlinear Control Systems	<i>A. U. Awan and M. Zamani</i>	6893
Distributed Error-Identification and Correction Using Block-Sparse Optimization	<i>S. Khan and I. Hwang</i>	6901
Robust, Positive, and Exact Model Reduction via Monotone Matrices	<i>M. Cortese, T. Grigoletto, F. Ticozzi, and A. Ferrante</i>	6907
On the Exponential Convergence of Input–Output Signals of Nonlinear Feedback Systems	<i>L. Su, D. Zhao, and S. Z. Khong</i>	6913
Improved Synthesis of Nondeterministic Publicly Known Edit Functions for Opacity Enforcement	<i>R. Liu and C. N. Hadjicostis</i>	6921
Game-Theoretic Steady-State Control: A General Framework for NE Seeking With LTI Agents	<i>A. R. Romano and L. Pavel</i>	6929
Stochastic Opinion Dynamics Under Social Pressure in Arbitrary Networks	<i>J. Tang, A. Adler, A. Ajorlou, and A. Jadbabaie</i>	6937
Asymptotic Stability of Quantized Feedback Systems With Input and State Quantizations and Saturations Over Finite Data Rate Channels	<i>J. Wang</i>	6945
Global Asymptotic Stability Analysis for Autonomous Optimization	<i>Z. Jin</i>	6953
An Online Cross-Layered Defense Strategy With Bandwidth Allocation for Multichannel Systems Under DoS Attacks	<i>L. Wan, P. Li, and J. Lam</i>	6961
Inverse Optimal Control for Passive Network Systems	<i>L. Hallinan, J. D. Watson, and I. Lestas</i>	6969
Analysis and Stabilization of Linear Cone-Preserving Systems With Bounded Inputs	<i>H. Qiu and J. Shen</i>	6977
Global Exponential Stability Preservation Under Sampling and Approximated Delay-Dependent Feedbacks for Nonlinear Systems With Time-Varying Delays	<i>B. Caiazzo, S. Leccese, P. Pepe, A. Petrillo, and S. Santini</i>	6984

Trajectory Tracking of AAVs Based on Rodrigues Parameter	Z. Wu	6992
Nonlinear Adaptive PID Control for Nonlinear Systems	K. Xiang, Y. Song, and P. Ioannou	7000
Delayed Pinning Control for Synchronization of Dynamical Networks	S. Zhu, F. Li, Z. Deng, and J. Lü	7008
Safety-Critical Control for Nonlinear Systems With Complex Input Constraints	Y. Deng, M. Ogura, Y. Bai, Y. Wang, and M. Feroskhan	7016
Optimal Adaptive Control of Linear Stochastic Systems With Quadratic Cost Function	N. Liu, C. Zhao, S. Tan, and J. Lü	7024
A Sparsity Approach to Scheduling and Control of Networked Systems	A. Dasgupta and A. Kundu	7032
An Inner Approximation Algorithm for Dynamic Optimization With Strict Satisfaction of Path Constraints	J. Fu and L. Jiang	7039
Virtual Nonholonomic Constraints-Based Motion Control for Underactuated UAV Slung-Payload Systems	J. Kang and J. Shan	7047
Output-Positive Adaptive Control of Hyperbolic PDE-ODE Cascades	J. Wang and M. Krstic	7055
Completely Distributed State Estimation for Jointly Observable Uncertain Linear Systems	L. Zhang, M. Guay, S. Wang, and M. Lu	7063
Switching-Based Deployment of Multiagent Systems Using Kuramoto–Sivashinsky Model	J. Zhang, W. Kang, and J.-M. Wang	7071

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



SEPTEMBER 2025

VOLUME 12

NUMBER 3

ITCNAY

(ISSN 2325-5870)

REGULAR PAPERS

Cooperative Output Regulation Subject to Uncertain Exosystems and Its Application: A Fully Distributed Adaptive Observer Approach	<i>L. Zhang, M. Lu, F. Deng, and J. Chen</i>	1830
Distributed Variational Inference for Online Supervised Learning	<i>P. Paritosh, N. Atanasov, and S. Martínez</i>	1843
Quantized Distributed Nash Equilibrium Seeking Under DoS Attacks	<i>S. Feng, M. Ye, L. Xie, and S. Xu</i>	1856
Consensus of Fractional-Order Fuzzy Multiagent Systems: Exploring Impulsive Security Protocols	<i>Y. Xu, Z. Zhang, X. Xie, R. M. Palhares, W. Li, and Y. Wu</i>	1869
Clustered Control of Transition-Independent MDPs	<i>C. Fisco, S. Kar, and B. Sinopoli</i>	1881
Average Communication Rate for Networked Event-Triggered Stochastic Control Systems	<i>Z. Zhang, Q. Liu, M. H. Mamduhi, and S. Hirche</i>	1894
Distributed Fixed-Time Nash Equilibrium Seeking for Noncooperative Games	<i>Q. Meng, Q. Ma, G. Feng, L. Liu, and Y. Shi</i>	1906
Distributed Nash Equilibrium Seeking Over Time-Varying Directed Communication Networks	<i>D. T. A. Nguyen, D. T. Nguyen, and A. Nedić</i>	1917
Distributed Identification With Input Design for Network Systems	<i>X. Mao, J. He, and C. Fang</i>	1930
Event-Triggered Distributed Fusion Estimation for Clustered Sensor Networks With Multiscale Fading and Multirate Sampling Characteristics	<i>C. Xu, D. He, M. Lv, H. Du, and Y. Kang</i>	1943
Centralized and Decentralized Implicit Differentiation	<i>L. F. Valenzuela, R. Brown, and M. Pavone</i>	1957
Event-Triggered Data-Driven Formation Control for Heterogeneous Multiagent Systems Subject to DoS Attacks	<i>Z. Ren, H. Liu, M. V. Basin, and Q. Gao</i>	1968
On Metzler Positive Systems on Hypergraphs	<i>S. Cui, G. Zhang, H. Jardón-Kojakhmetov, and M. Cao</i>	1980
Collective Rhythm Design in Coupled Mixed-Feedback Systems Through Dominance and Bifurcations	<i>O. Juarez-Alvarez and A. Franci</i>	1992
Momentum-Based Distributed Disturbance Feedback Optimization of Heterogeneous Multiagent Systems: A Timescale Separation Approach	<i>Z. Jin, H. Li, Z. Qin, and Y. Tian</i>	2004

(Contents Continued on Page i)



Circular Formation Control for Networked Dynamic Autonomous Underwater Vehicles: Estimator-Based Approaches	J. Xie, W. Lan, F. Tong, and X. Yu	2016
Data-Driven Output Consensus Tracking Control for Heterogeneous Multiagent Systems With a Dynamic Leader	Y. Zhou, G. Wen, J. Zhou, H. Liu, and J. Lü	2029
A Novel Decentralized Leader–Follower Control Scheme for Centroid and Formation Tracking	M. Sileo, Y. Karayiannidis, F. Pierri, and F. Caccavale	2040
Distributed Safety-Critical Optimal Flocking Control Algorithm With Feasibility Enhancement of High-Order Control Barrier Function	Y. Song, N. P. Nguyen, H.-S. Park, Y. You, M. Lee, and H. Oh	2052
Nonpreemptive Scheduling of Flexible Loads in Smart Grids via Convex Optimization	M. Davoudi, M. Chen, and J. Qin	2064
A Predictive Control Strategy for Remotely Maneuvered Wheeled Mobile Robots Enabling Setpoint Attack Detection	C. Tiriolo, M. Cersullo, G. Franzè, and W. Lucia	2077
Consensus Controllability for Node and Edge Multiagent Systems	L. Kang, Z. Ji, Y. Liu, and C. Lin	2088
Distributed Aggregative Optimization Algorithm for Solving Multirobot Formation Problem	J. Huang, C. Yang, S. Wu, and Q. Liu	2102
Differentially Private Dynamic Average Consensus of Multiagent Systems via Cloud Access With Self-Triggered Mechanism	Y. Yang, K. Yang, W. Yue, Z. Li, and C. Deng	2115
A Predefined-Time Multiagent Approach to Distributed Nonconvex Optimization With Nonlinearly Coupled Information	Z. Xia, W. Yu, and W. Ren	2128
State Estimation of Multisensor With Out-of-Order Measurements	Q. Zhao, H. Xu, and Y. Li	2144
Switching-Like Event-Based Formation Control for Multiagent Systems Against Denial-of-Service Attacks	T. Ru, C. Cai, H. Lin, I. J. Rudas, and P. Shi	2156
Adaptive Event-Triggered Control With Sampled Transmitted Output and Controller Dynamics	G. Zuo and L. Zhu	2169
Propagation Dynamics of Network System in Response to the Resource-Consuming Attack	B. Peng, J. Liu, and J. Zeng	2180
Aggregative Game Analysis for Energy Consumption of Multizone HVAC Systems	X. He, Z. Lin, and Q. Chang	2194
Power System State Estimation by Phase Synchronization and Eigenvectors	I. Guzel and R. Y. Zhang	2207
Safety-Critical Event-Triggered Control for Networked Control Systems Under Quantization and Time-Varying Delay	X.-L. Cheng, K.-Z. Liu, Y.-W. Wang, and X.-M. Sun	2219
Toward Tight Lower Bounds for the Number of AC Optimal Power Flow Solutions	W. Tian, H.-D. Chiang, and T. Wang	2231
Distributed Event-Triggered Bandit Convex Optimization With Time-Varying Constraints	K. Zhang, X. Yi, G. Wen, M. Cao, K. H. Johansson, T. Chai, and T. Yang	2242
Parametric Resonance in Networked Oscillators	K. Chikmagalur and B. Bamieh	2254
Event-Triggered Data-Driven LFC of Multimicrogrid Interconnected Systems With Time Delays	X. Bu, Y. Zhang, X. Ren, and Z. Hou	2266
Asymptotic Leader-Following With Continuous Control Inputs in Networked Euler–Lagrangian Systems: The Case of Directed Topologies	H. Rezaee, T. Parisini, and M. M. Polycarpou	2278
Prescribed Performance Control for USV-UAV via a Robust Bounded Compensating Technique	G. Zhang, Y. Xing, W. Zhang, and J. Li	2289
A Prediction-Correction Proximal Method for Convex Optimization With Linear Equality and Inequality Constraints	Z. Wu and X. Zhao	2300
Structural Averaged Controllability for Linear Ensemble Systems: Single-Input Case	X. Chen and B. Gharesifard	2314
Distributed Control of Flexible Loads by Mean-Field Inversion	P. Bendotti, N. Oudjane, and C. Wan	2325
Adaptive Weighting Push-SUM for Decentralized Optimization With Statistical Diversity	Y. Zhou, Y. Cheng, L. Xu, and E. Chen	2337
Finite-Time Max-Consensus for Simultaneous Target Interception in Switching Graph Topologies	K. P. Singh, A. K. Rao, and T. Tripathy	2350
Output-Feedback Consensus-Formation Control of Nonholonomic Vehicles With Input Constraints and Time-Varying Delays	A. I. Paredes, E. Nuño, and A. Loría	2361
Signal-to-Noise Ratio Input Constrained Control of Single-Input Multiple-Output Systems	A. J. Rojas	2372
Reputation-Based Resilient Consensus With Privacy Guarantees	G. Ramos, S. Pequito, and D. Silvestre	2381

Distributed Event-Triggered Attitude Estimation Without Angular Velocity Measurements	
..... <i>S. Li, X. Jin, Y. Li, F. Li, H. Werner, and Y. Tang</i>	2392
Active Defense Strategy in Cyber-Physical Systems: Misleading Unauthorized Observers	
..... <i>G. Shaaban, H. Fourati, A. Kibangou, and C. Prieur</i>	2404
Distributed Fault-Tolerant Formation Tracking of Networked Quadrotors Using Cascade Estimators	
..... <i>K. Xia, J. Peng, Y. Zou, and Z. Zuo</i>	2416
Prescribed-Time Nash Equilibrium Seeking for Pursuit–Evasion Game Under Intermittent Control With Undirected/Directed Graph	<i>L. Xue, J. Ye, Y. Wu, J. Liu, and D. C. Wunsch</i> 2428
Input-to-State Stability of Nonlinear Time-Delay Coupled Systems on Networks With Delay-Dependent Impulses	<i>H. Hu, H. Yang, L. Xu, and Z. Ding</i> 2437
Distributed Observer for Descriptor Linear System: The Luenberger Observer Method	<i>S. Liu and H. Xu</i> 2447

IEEE

CONTROL SYSTEMS LETTERS

A PUBLICATION OF THE IEEE CONTROL SYSTEMS SOCIETY



2025

VOLUME 9

NUMBER 6 (PAPERS from 231 to 280)

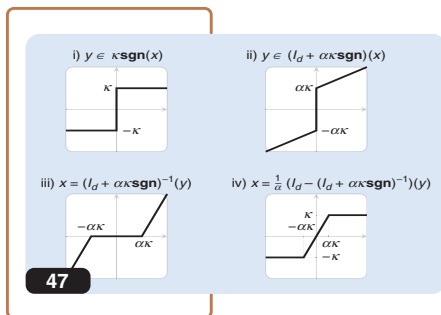
PAPERS

- Derandomizing Simultaneous Confidence Regions for Band-Limited Functions by Improved Norm Bounds and Majority-Voting Schemes, *B. C. Csáji and B. Horváth*..... pp. 1381-1386
- Line-of-Sight Guidance: Learning to Look Ahead in Three Dimensions, *E. L. Foseid, H. M. Schmidt-Didlauskies, E. A. Basso, K. Y. Pettersen and J. Tommy Gravdahl*..... pp. 1387-1392
- On Sample-Based Functional Observability of Linear Systems, *I. Krauss, V. G. Lopez and M. A. Müller*pp. 1393-1398
- Wireless Control With Channel State Detection and Message Dropout Compensation, *Y. Zacchia Lun, F. Santucci and A. D’Innocenzo* pp. 1399-1404
- More Information Is Not Always Better: Connections Between Zero-Sum Local Nash Equilibria in Feedback and Open-Loop Information Patterns, *K. Gupta, R. E. Allen, D. Fridovich-Keil and U. Topcu*.....pp. 1405-1410
- Distributed Adaptive Resilient Consensus Control for Uncertain Nonlinear Multiagent Systems Against Deception Attacks, *M. Yu, W. Wang and J. Yan* pp. 1411-1416
- Vanishing Stacked-Residual PINN for State Reconstruction of Hyperbolic Systems, *K. Eshkofti and M. Barreau* pp. 1417-1422
- Position, Velocity, and Attitude Estimation Based on MARG and Position Measurements Under Unknown External Acceleration, *G. Shaaban, H. Fourati, A. Kibangou and C. Prieur* pp. 1423-1428
- Hard Prioritization Control Allocation: Dealing With the Priority Inversion Phenomenon, *I. Novais, M. Marinatto, F. Lizarralde and A. J. Peixoto* pp. 1429-1434
- Simultaneous Inertia Estimation and Trajectory Tracking Control for Quadrotor Rotational Dynamics, *J. G. Romero, M. A. Martínez-Ramírez, J. Antonio Gándara-Sánchez and H. Rodríguez-Cortés*.....pp. 1435-1440
- Externally Positive Systems of Order k and Their Application to Undershoot and Overshoot Analysis, *S. van den Eijnden, J. Lohéac and P. Lorenzetti* pp. 1441-1446
- Constant-Sum High-Order Barrier Functions for Safety Between Parallel Boundaries, *K. H. Kim, M. Diagne and M. Krstić* pp. 1447-1452
- Guaranteed Privacy-Preserving H^∞ -Optimal Interval Observer Design for Nonlinear Discrete-Time Systems, *M. Khajenejad*..... pp. 1453-1458
- Erratum to "On Regular Regressors in Adaptive Control," *E. M. Uzeda and M. E. Broucke* pp. 1459-1459
- Constructive Averaging of a Class of Parabolic PDEs With Applications to Vibrational Control, *R. Katz and E. Fridman* pp. 1460-1465
- Value-Oriented Forecast Combinations for Unit Commitment, *M. Ghazanfariharandi and R. Mieth*pp. 1466-1471
- Discrete-Time Distributed Potential-Based Coordination in Networked Multi-Agent Systems, *A. Miele, M. Lippi and A. Gasparri* pp. 1472-1477
- Direct Bayesian Identification of Inverse Linear Systems, *R. Suzuki, T. Oomen and R. A. González* pp. 1478-1483
- Practical Synchronization for Switched Multi-Agent Systems Under Nonvanishing Impulses, *Y. Xiong, M. Xue, K. Chen and Y. Song* pp. 1484-1489

Robust Output Feedback MPC for Constrained Linear Systems Based on Zonotopic Kalman Filter, <i>J. Zhang, W. Tang, Y. Wu and X. -M. Sun</i>	pp. 1490-1495
Neural Barrier Certificates for Monotone Systems, <i>A. Alavi, A. Nadali, M. Zamani and S. Jafarpour</i>	pp. 1496-1501
State-Feedback Equilibrium Strategy for a 3-D Inertial Game With Two Cooperative Pursuers Versus One Superior Evader, <i>Z. Zhan, Y. Zhang, P. Zhang and L. Wang</i>	pp. 1502-1507
Multivariable Feedback Control for Multiconstraint Optimization in Online Advertising, <i>N. Karlsson</i>	pp. 1508-1513
Synchronization and Control in Bistable Oscillator Networks: Towards Epilepsy Regulation, <i>Z. Liu, Y. Qin, M. van Gerven and O. Stursberg</i>	pp. 1514-1519
Input Redundancy of Switched Systems Concerning the Switching Signal, <i>V. V. Viana, J. Kreiss and M. Jungers</i>	pp. 1520-1525
Energy-Optimal Control of Discrete-Time Port-Hamiltonian Systems, <i>A. Sarkar, V. Kumar Singh, M. Schaller and K. Worthmann</i>	pp. 1526-1531
Soft-Constrained Stochastic MPC of Markov Jump Linear Systems: Application to Real-Time Control With Deadline Overruns, <i>M. Gallant et al</i>	pp. 1532-1537
Coalitional Control: Clustering Based on the H2 Norm, <i>P. R. Baldivieso-Monasterios and E. Masero</i>	pp. 1538-1543
Friedkin-Johnsen Model is Distributed Gradient Descent, <i>O. E. Akgün, Á. Vékassy, L. Ballotta, M. Yemini and S. Gil</i>	pp. 1544-1549
A Successive Convexification-Based Approach for Efficient School Scheduling in Multi-Region Urban Networks, <i>A. Georgantas, S. Timotheou and C. G. Panayiotou</i>	pp. 1550-1555
Optimal Control of Soft-Robotic Crawlers Subject to Nonlinear Friction: A Perturbation Analysis Approach, <i>A. Gusty, C. Scarborough, J. Arbelaiz and E. Jensen</i>	pp. 1556-1561
Approximation-Free Control for Signal Temporal Logic Specifications Using Spatiotemporal Tubes, <i>R. Das, S. Choudhury and P. Jagtap</i>	pp. 1562-1567
On Exact Solutions to the Linear Bellman Equation, <i>D. Ohlin, R. Pates and M. Arcak</i>	pp. 1568-1573
Counterexample-Guided Synthesis of Robust Discrete-Time Control Barrier Functions, <i>E. Shakhesi, A. Katriniok and W. P. M. H. M. Heemels</i>	pp. 1574-1579
Decentralized Continuification Control of Multi-Agent Systems via Distributed Density Estimation, <i>B. d. Lorenzo, G. Carlo Maffettone and M. d. Bernardo</i>	pp. 1580-1585
Synchronization of Multi-Agent Hybrid Systems With Synchronous State-Dependent Jumps, <i>A. Cellier-Devaux, L. Zaccarian, D. Astolfi and V. Andrieu</i>	pp. 1586-1591
Automatic and Scalable Safety Verification Using Interval Reachability With Subspace Sampling, <i>B. Gould, A. Harapanahalli and S. Coogan</i>	pp. 1592-1597
Data-Driven Fault Isolation in Linear Time-Invariant Systems: A Subspace Classification Approach, <i>M. A. Sheikhi, G. de Albuquerque Gleizer, P. Mohajerin Esfahani and T. Keviczky</i>	pp. 1598-1603
Modular Distributed Nonconvex Learning With Error Feedback, <i>G. Carnevale and N. Bastianello</i>	pp. 1604-1609
Online Optimization With Unknown Time-Varying Parameters, <i>S. Tripathi, A. A. A. Makdah and F. Pasqualetti</i>	pp. 1610-1615
Discrete Distributed Estimation of Algebraic Connectivity and Fiedler Vector, <i>Y. Fan, X. Deng, X. Yang, M. Liu and F. Bai</i>	pp. 1616-1621
On Model Predictive Funnel Control With Equilibrium Endpoint Constraints, <i>J. Göbel, D. Dennstädt, L. Lanza, K. Worthmann, T. Berger and T. Damm</i>	pp. 1622-1627
On Relaxing the N-Reachability Implicit Requirement in NMPC Design, <i>M. Alamir</i>	pp. 1628-1633
Sensor Placement in District Heating Networks Using Frequency-Domain Gramians, <i>M. Sibeijn, S. Pequito, D. Boskos and M. Khosravi</i>	pp. 1634-1639
One-Bit Consensus Control of Multi-Agent Systems With Packet Loss, <i>R. An, Y. Wang, Y. Zhao and J. -F. Zhang</i>	pp. 1640-1645
Mixtures of Ensembles: System Separation and Identification via Optimal Transport, <i>F. Elvander and I. Haasler</i>	pp. 1646-1651

Distributionally Robust Minimization in Meta-Learning for System Identification, <i>M. Rufolo, D. Piga and M. Forgione</i>	pp. 1652-1657
A Novel Unknown Input Observer Design for Nonlinear LPV Systems, <i>J. Pablo Arango, L. Etienne, E. Duviella, K. Languéh, P. Segovia and V. Puig</i>	pp. 1658-1663
Strong Stability of Linear Delay-Difference Equations, <i>F. Gonçalves Netto, Y. Chitour and G. Mazanti</i>	pp.1664-1669
Fast Filtering of Non-Gaussian Models Using Amortized Optimal Transport Maps, <i>M. Al-Jarrah, B. Hosseini and A. Taghvaei</i>	pp. 1670-1675

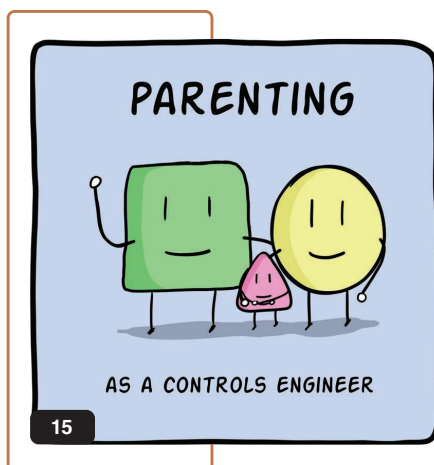
» FEATURES



VISUAL RENDERING GENERATED WITH CHATGPT.
ORIGINAL IDEA, SYMBOLISM AND CREATIVE
DIRECTION BY FÉLIX MIRANDA VILLATORO.

DESCRIPTION OF THE COVER ART:
PROXIMAL POINT ALGORITHMS (PPA) FROM
OPTIMIZATION AS AN ACTIVE WAY TO CORRECT
THE CHATTERING PROBLEM INDUCED BY
DISCONTINUOUS CONTROLLERS IN CONVENTIONAL
SLIDING MODE METHODS.

» DEPARTMENTS



28 *Semper in Motu: Transforming Mobility Through Learning and Control*

2024 Bode Prize Lecture

KARL H. JOHANSSON

47 *An Optimization Perspective on Discrete-Time Sliding Modes*

When Proximal-Point Algorithms Meet Set-Valued Systems

FÉLIX MIRANDA-VILLATORO, FERNANDO CASTAÑOS,
AND BERNARD BROGLIATO

3 FROM THE EDITOR

Heilmeier's Catechism

6 ABOUT THIS ISSUE

Semper Motu, Heilmeier's Catechism, Optimality,
and Discrete-Time Sliding Modes

8 PRESIDENT'S MESSAGE

More Optimal

10 25 YEARS AGO

Evolution and Control Systems Design:
The Evolutionary Game

15 ON THE LIGHTER SIDE

Parenting

16 MEMBER ACTIVITIES

Key Takeaways From the IEEE Young Professionals
Annual Meeting

19 TECHNICAL ACTIVITIES

Overview of the IEEE CSS Technical Committee
on Process Control
IEEE Control Systems Society Technical Committee
on Systems and Synthetic Biology

22 PEOPLE IN CONTROL

Daniel Sbarbaro
Keyou You

95 INSTITUTES IN CONTROL

University of California, Berkeley, Berkeley,
CA, USA

101 BOOK REVIEW

Machine Learning for Engineers



102

102 CONFERENCE REPORTS
2026 IEEE Conference on Control Technology
and Applications

104 CONFERENCE CALENDAR

IEEE PUBLISHING OPERATIONS

445 Hoes Lane, Piscataway, NJ 08854 USA

IEEE OFFICERS

Kathleen A. Kramer, *IEEE President and CEO*
Mary Ellen Randall, *IEEE President-Elect*
Thomas M. Coughlin, *IEEE Past President*
Forrest D. Wright, *Director & Secretary*
Gerardo Barbosa, *Director & Treasurer*
Timothy P. Kurzweg, *Director & Vice President, Educational Activities*
Antonio Luque, *Director & Vice President, Member & Geographic Activities*
W. Clem Karl, *Director & Vice President, Publication Services and Products*
Gary R. Hoffman, *Director & President, Standards Association*
Dalma Novak, *Director & Vice President, Technical Activities*
Timothy T. Lee, *Director & President IEEE-USA*

IEEE EXECUTIVE STAFF

Sophia Muirhead, *Executive Director and COO*
Kelly Armstrong, *Chief Financial Officer*
Mojdeh Bahar, *Managing Director, Technical Activities*
Ahsaki E. Benion, *General Counsel and Chief Compliance Officer*
Russell Harrison, *Managing Director, IEEE-USA*
Steven Heffner, *Chief Publication Officer and Managing Director*
Donna Hourican, *Staff Executive, Corporate Activities*
Marie Hunter, *Managing Director, Conferences, Events and Experiences*
Cecelia Jankowski, *Managing Director, Member and Geographic Activities*
Jamie Moesch, *Managing Director, Educational Activities*
Jayne O'Brien, *IEEE Chief Marketing Officer (CMO)*
Alpesh Shah, *IEEE Standards Association Managing Director*
Jeff Strohschein, *Chief Information Digital Officer*
Cheri N. Wideman, *Chief Human Resources Officer*

IEEE PUBLISHING OPERATIONS

Dawn Melley, *Senior Director, Publishing Operations*
Kevin Lisankie, *Director, Editorial Services*
Peter M. Tuohy, *Director, Production Services*
Neelam Khinvasara, *Associate Director, Digital Assets & Editorial Support*
Felicia Spagnoli, *Advertising Production Manager*
Katie Sullivan, *Senior Manager, Periodicals Production*
Shannon Campos, *Senior Journals Production Manager*

ADVERTISING SALES

Timothy Warder
Director of New Product and Audience Development

IEEE prohibits discrimination, harassment, and bullying. For more information, visit <https://www.ieee.org/nondiscrimination>.

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://ieeecss.org/publication/ieee-control-systems-magazine>. 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 e-mailed to aanna@mit.edu.

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 Timothy Warder, t.warder@ieee.org, +1 732-562-6596.

IEEE CONTROL SYSTEMS—(ISSN 1066-033X) (ISMD7) is published bi-monthly by The Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, New York, NY 10016, 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. To order individual copies for members and nonmembers, please e-mail the IEEE Contact Center at contactcenter@ieee.org. Member and nonmember subscription prices 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 © 2025 by The Institute of Electrical and Electronics Engineers, Inc. All rights reserved. Periodicals postage paid at New York, NY, and 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



Conference on Decision and Control CDC 2025

December 10–12, Rio de Janeiro, Brazil

Initial Paper Submissions to L-CSS with CDC Option Due

~~March 17, 2025~~ (Passed)

Invited Session Proposals Due

~~March 24, 2025~~ (Passed)

Initial Paper Submissions Due

~~March 31, 2025~~ (Passed)

Workshop Proposals Due

~~May 2, 2025~~ (Passed)

Decision Notification

Mid-July, 2025

Final Submissions and Advance Registration Due

~~September 3, 2025~~ (Passed)

<https://cdc2025.ieeecss.org/>



American Control Conference **ACC 2026**

May 26–29, New Orleans, LA, USA

L-CSS option Submission

September 12, 2025 (Passed)

ACC Manuscript Submission

September 26, 2025 (Passed)

Acceptance/Rejection Notice

January 23, 2026

Final Manuscript Submission

March 13, 2026

<https://acc2026.a2c2.org/>



Conference on Control Technology and Applications **CCTA 2026**

August 12–14, Vancouver, Canada

Tutorial Session Proposals Due

31 January, 2026

Invited Session Proposals Due

31 January, 2026

Paper Submissions Due

8 February, 2026

Registration Opens

Early May, 2026

Notification of Acceptance

Early May, 2026

Final Camera-ready Submission

1 June, 2026

<https://ccta2026.ieeecss.org/>



Conference on Decision and Control **CDC 2026**

December 15–18, Honolulu, USA

Initial Paper Submissions (L-CSS + CDC)

March 17, 2026

Invited Session Proposals

March 24, 2026

Initial Paper Submissions

March 31, 2026

Workshop Proposals

May 1, 2026

CSS Journal Paper for Presentation

June 10, 2026

Decision Notification

Mid-July, 2026

Final Submission Deadline

September 18, 2026

<https://cdc2026.ieeecss.org/>