

# IEEE TRANSACTIONS ON AUTOMATIC CONTROL

A PUBLICATION OF THE IEEE CONTROL SYSTEMS SOCIETY



MARCH 2016

VOLUME 61

NUMBER 3

IETAA9

(ISSN 0018-9286)

---

Scanning the Issue ..... 569

---

## REGULAR PAPERS

Synthesis of Optimal Insertion Functions for Opacity Enforcement .....	<i>Y.-C. Wu and S. Lafortune</i>	571
Spectrum White Space Trade in Cognitive Radio Networks .....	<i>G. S. Kasbekar and S. Sarkar</i>	585
String Submodular Functions With Curvature Constraints .....	<i>Z. Zhang, E. K. P. Chong, A. Pezeshki, and W. Moran</i>	601
Distributed Coordination Control for Multi-Robot Networks Using Lyapunov-Like Barrier Functions .....	<i>D. Panagou, D. M. Stipanović, and P. G. Voulgaris</i>	617
A Tractable Fault Detection and Isolation Approach for Nonlinear Systems With Probabilistic Performance .....	<i>P. Mohajerin Esfahani and J. Lygeros</i>	633
Invariance-Like Theorems and “lim inf” Convergence Properties .....	<i>G. Scarciotti, L. Praly, and A. Astolfi</i>	648
On a New Paradigm for Stock Trading Via a Model-Free Feedback Controller .....	<i>B. R. Barmish and J. A. Primbs</i>	662
Robust Stability for Multiple Model Adaptive Control: Part I—The Framework .....	<i>D. Buchstaller and M. French</i>	677
Robust Stability for Multiple Model Adaptive Control: Part II—Gain Bounds .....	<i>D. Buchstaller and M. French</i>	693
A Payoff-Based Learning Approach to Cooperative Environmental Monitoring for PTZ Visual Sensor Networks .....	<i>T. Hatanaka, Y. Wasa, R. Funada, A. G. Charalambides, and M. Fujita</i>	709
Homogeneity Based Uniform Stability Analysis for Time-Varying Systems .....	<i>H. Ríos, D. Efimov, L. M. Fridman, J. A. Moreno, and W. Perruquetti</i>	725
Maximum Hands-Off Control: A Paradigm of Control Effort Minimization .....	<i>M. Nagahara, D. E. Quevedo, and D. Nešić</i>	735

---

## TECHNICAL NOTES AND CORRESPONDENCE

On the Analysis of the Eigenvalues of Uncertain Matrices by $\mu$ and $\nu$ : Applications to Bifurcation Avoidance and Convergence Rates .....	<i>M. Kishida and R. D. Braatz</i>	748
A New Generalized Consensus Problem and Its CRT-Based Solution .....	<i>G. Campobello, L. Galluccio, S. Palazzo, and A. Leonardi</i>	754
Feedback Stabilization for the Mass Balance Equations of an Extrusion Process .....	<i>M. Diagne, P. Shang, and Z. Wang</i>	760
LMI Stability Conditions for 2D Roesser Models .....	<i>O. Bachelier, W. Paszke, N. Yeganefar, D. Mehdi, and A. Cherifi</i>	766
Stability Analysis for Time-Varying Systems With Delay Using Linear Lyapunov Functionals and a Positive Systems Approach .....	<i>F. Mazenc and M. Malisoff</i>	771
On Distributed and Parameterized Supervisor Synthesis Problems .....	<i>L. Lin, A. Stefanescu, and R. Su</i>	777
Common I/O Decoupling for Multi Model Descriptor Systems .....	<i>F. N. Koumboulis</i>	783
Simple Covariance Approach to $\mathcal{H}_\infty$ Analysis .....	<i>A. Gattami and B. Bamieh</i>	789
Analysing the Stability of Linear Systems via Exponential Chebyshev Polynomials .....	<i>V. Y. Protasov and R. M. Jungers</i>	795
Nonblocking Supervisory Control of Discrete Event Systems Modeled by Mealy Automata With Nondeterministic Output Functions .....	<i>T. Ushio and S. Takai</i>	799

---

(Contents Continued on Back Cover)

---

Distributed Mixed $H_2/H_\infty$ Fusion Estimation With Limited Communication Capacity . . . . .	<i>B. Chen, G. Hu, W-A. Zhang, and L. Yu</i>	805
Stability Analysis for LTI Control Systems With Controller Failures and Its Application in Failure Tolerant Control . . . . .	<i>W. Xiang, G. Zhai, and C. Briat</i>	811
Distributed Nonlinear MPC of Multi-Agent Systems With Data Compression and Random Delays . . . . .	<i>S. El-Ferik, B. A. Siddiqui, and F. L. Lewis</i>	817
An Ensemble Kushner-Stratonovich-Poisson Filter for Recursive Estimation in Nonlinear Dynamical Systems . . . . .	<i>M. Venugopal, R. M. Vasu, and D. Roy</i>	823
Discussion Aspects of High-Order Sliding Mode Control . . . . .	<i>V. Utkin</i>	829
Time-Varying Input and State Delay Compensation for Uncertain Nonlinear Systems . . . . .	<i>R. Kamalapurkar, N. Fischer, S. Obuz, and W. E. Dixon</i>	834
$\mathcal{L}_1$ Adaptive Control for a Class of Uncertain Nonaffine-in-Control Nonlinear Systems . . . . .	<i>R. Choe, E. Xargay, and N. Hovakimyan</i>	840

---