

REGULAR PAPERS

Control Theory and Applications

Global Finite-time Stabilization for a Class of Switched Nonlinear Systems via Output Feedback

J. Zhai and Z. Song 1975

A PageRank Based Coalitional Control Scheme

J. M. Maestre and H. Ishii 1983

Decentralized Iterative Learning Control for Large-scale Interconnected Linear Systems with Fixed Initial Shifts

Q. Fu, P.-P. Gu, and J.-R. Wu 1991

Inertial Motion Tracking Using Sensor Saturation Compensation with  $l_2$  Norm Regularization

Y. S. Suh 2001

Interacting Multiple Model Estimation-based Adaptive Robust Unscented Kalman Filter

B. Gao, S. Gao, Y. Zhong, G. Hu, and C. Gu 2013

Operator-based Robust Nonlinear Optimal Vibration Control for an L-shaped Arm Driven by Linear Pulse Motor

Y. Wu and M. Deng 2026

Study on the Sliding Mode Fault Tolerant Predictive Control Based on Multi Agent Particle Swarm Optimization

P. Yang, R. Guo, X. Pan, and T. Li 2034

Nonlinear Adaptive Controller Applied to an Antilock Braking System with Parameters Variations

C. A. Lúa, S. D. Gennaro, and M. E. S. Morales 2043

Direct Power Control of Grid Connected Voltage Source Inverters Using Port-controlled Hamiltonian System

Y. Gui, G. H. Lee, C. Kim, and C. C. Chung 2053

Super Twisting Observer based Repetitive Control for Aperiodic Disturbance Rejection in a Brushless DC Servo Motor

R. Chuei, Z. Cao, and Z. Man 2063

Stability of Nonlinear Systems with Variable-time Impulses: B-equivalence Method

C. Li, Y. Zhou, H. Wang, and T. Huang 2072

$H_\infty$  Suboptimal Tracking Controller Design for a Class of Nonlinear Systems

Y. Batmani 2080

Model Order Reduction of Nonlinear Models based on Decoupled Multimodel via Trajectory Piecewise Linearization

S. S. Mohseni, M. J. Yazdanpanah, and A. R. Noei 2088

Robust Finite-time Control for Neutral Systems with Time-varying Delays via Sliding Mode Observer

S. Wang, C. Gao, B. Jiang, and Y. Kao 2099

On Estimation of Nonlinear Functionals from Discrete Noisy Measurements

I. Y. Song, V. Shin, and W. Choi 2109

Integral Sliding Mode Control of a Bilateral Teleoperation System Based on Extended State Observers

L. Zhao, H. Zhang, Y. Yang, and H. Yang 2118

Adaptive PSO-LS-Wavelet  $H_\infty$  Control for Two-wheeled Self-balancing Scooter

A. Azizi, H. Nourisola, A. Sadeghi-Emamgholi, and F. Naderisafa 2126

Reachable Sets of Second-order Switched Systems

C. Pérez, F. Benítez, and J. B. G. Gutiérrez 2138

Stability Analysis of Uncertain Neutral Systems with Discrete and Distributed Delays via the Delay Partition Approach

Q. Zhu, S. Senthilraj, R. Raja, and R. Samidurai 2149

Robust Unscented Kalman Filter for Nanosat Attitude Estimation

D. Lee, G. Vukovich, and R. Lee 2161

Passivity and Passification for Stochastic Systems with Markovian Switching and Generally Uncertain Transition Rates

W. Qi, Y. Kao, and X. Gao 2174

Model Reference Tracking Control of Continuous-time Periodic Linear Systems with Actuator Jumping Fault and Its Applications in Orbit Maneuvering

Y.-M. Fu, Y. Lu, and M.-R. Zhang 2182

Development of a New Automatic Fault Diagnosis System for Fine Pattern Transmission Lines

S.-H. Noh, J.-H. Lim, and J.-Y. Ryu 2193

Low Rate Error Modeling of Articulated Heavy Vehicle Dynamics and Experimental Validation

M. Bouteldja and V. Cerezo 2203

Stabilizing Periodic Orbits of a Class of Mechanical Systems with Impulse Effects: A Lyapunov Constraint Approach

M. Chaalal and N. Achour 2213

Frequency Identification of Hammerstein-Wiener Systems with Backlash Input Nonlinearity

A. Brouri, L. Kadi, and S. Slassi 2222

Fault Detection Observer Design for Fuzzy Systems with Local Nonlinear Models via Fuzzy Lyapunov Function

G. Liu, Y.-Y. Cao, and X.-H. Chang 2233

(Continued on inside back cover)

INDEXED IN Science Citation Index Expanded (SciSearch), SCOPUS, INSPEC, Google Scholar, ProQuest, Current Contents/Engineering, Computing and Technology, El-Compendex, Journal Citation Reports/Science Edition, OCLC, Summon by Serial Solutions, Korea Citation Index.

A Joint Publication of Institute of Control, Robotics and Systems and the Korea Institute of Electrical Engineers

# International Journal of Control, Automation, and Systems

**EDITOR-IN-CHIEF**

Professor Young Hoon Joo  
School of Electronic and Information Engineering  
Kunsan National University  
Chonbuk 54150, Korea  
E-mail: yhjoo@kunsan.ac.kr

**EDITORS**

Professor Euntai Kim  
School of Electrical and Electronic Engineering  
Yonsei University  
Seoul 03722, Korea  
E-mail: etkim@yonsei.ac.kr

Professor Myotaeg Lim  
School of Electrical Engineering  
Korea University  
Seoul 02841, Korea  
E-mail: mlim@korea.ac.kr

Professor Yoshito Ohta  
Department of Applied Mathematics & Physics  
Kyoto University  
Kyoto 606-8501, Japan  
E-mail: yoshito\_ohta@i.kyoto-u.ac.jp

Professor Ju Hyun Park  
Department of Electrical Engineering  
Yeungnam University  
Kyongsan 38541, Korea  
E-mail: jessie@ynu.ac.kr

Professor PooGyeon Park  
Department of Electronic and Electrical Engineering  
POSTECH  
Pohang 37673, Korea  
E-mail: ppg@postech.ac.kr

Professor Duk-Sun Shim  
School of Electrical and Electronics Engineering  
Chung-Ang University  
Seoul 06974, Korea  
E-mail: dshim@cau.ac.kr

Professor Fuchun Sun  
Department of Computer Science and Technology  
Tsinghua University  
Beijing 100084, P.R. China  
E-mail: fcsun@tsinghua.edu.cn

Professor Hyun-Seok Yang  
School of Mechanical Engineering  
Yonsei University  
Seoul 03722, Korea  
E-mail: hsyang@yonsei.ac.kr

**Former EDITOR-IN-CHIEF**

Myung Jin Chung, KAIST, Daejeon, Korea  
Jin Bae Park, Yonsei University, Seoul, Korea  
Jae-Bok Song, Korea University, Seoul, Korea

**MANUSCRIPT EDITOR** Jinyoung You, ICROS, Korea

**EDITORIAL ADVISORY BOARD**

Mituhiko Araki, Kyoto University, Kyoto, Japan  
Tamer Basar, Univ. of Illinois at Urbana-Champaign, U.S.A.  
Bor-Sen Chen, National Tsing Hua University, Taiwan, R.O.C.  
Hyungsuck Cho, KAIST, Daejeon, Korea  
Michael J. Grimble, The University of Strathclyde, Glasgow, U.K.  
Chang Chieh Hang, National Univ. of Singapore, Singapore  
Masao Ikeda, Osaka University, Osaka, Japan  
Rolf Isermann, Darmstadt University of Technology, Germany  
Alberto Isidori, University of Rome "La Sapienza", Italy  
Hidenori Kimura, RIKEN, Nagoya, Japan  
Wook Hyun Kwon, Seoul National University, Seoul, Korea  
Arthur C. Sanderson, Rensselaer Polytechnic Institute, U.S.A.  
Masayoshi Tomizuka, University of California at Berkeley, U.S.A.

**ASSOCIATE EDITORS**

Choon Ki Ahn, Korea University, Seoul, Korea  
Hyo-Sung Ahn, GST, Gwangju, Korea  
Juhoon Back, Kwangwoon University, Seoul, Korea  
Pinhas Ben-Tzvi, George Washington University, Washington, USA  
Mohammed Chadli, Univ. of Picardie Jules Verne, Amiens, France  
Kyu-Jin Cho, Seoul National University, Seoul, Korea  
Myung Geun Chun, Chungbuk National University, Chungbuk, Korea  
Andrea Cristofaro, University of Camerino, Camerino, Italy  
Jiuxiang Dong, Northeastern University, Liaoning, China  
Soohee Han, POSTECH, Pohang, Korea  
Changchun Hua, Yanshan University, Qinhuangdao, China  
Yingmin Jia, Beihang University, Beijing, China  
Bin Jiang, NUAA, Nanjing, China  
Kang-Hyun Jo, University of Ulsan, Ulsan, Korea  
Nam H. Jo, Soongsil University, Seoul, Korea  
Dong-Joong Kang, Pusan National University, Busan, Korea  
Hamid Reza Karimi, University of Agder, Grimstad, Norway  
DaeEun Kim, Yonsei University, Seoul, Korea  
Do Wan Kim, Hanbat National University, Daejeon, Korea  
Gon-Woo Kim, Chungbuk National University, Chungbuk, Korea  
H. Jin Kim, Seoul National University, Seoul, Korea  
Tae-Hyoung Kim, Chung-Ang University, Seoul, Korea  
Won-jong Kim, Texas A&M University, College Station, TX, U.S.A.  
Young Han Kim, Dong-A University, Busan, Korea  
Kyoungchul Kong, Sogang University, Seoul, Korea  
Oh Min Kwon, Chungbuk National University, Cheongju, Korea  
Ho Jae Lee, Inha University, Incheon, Korea  
Hongbo Li, Tsinghua University, Beijing, China  
Hongyi Li, Bohai University, Liaoning, China  
Shihua Li, Southeast University, Nanjing, China  
Yangmin Li, University of Macau, Macau, China  
Huaping Liu, Tsinghua University, Beijing, China  
Izumi Masubuchi, Kobe University, Kobe, Japan  
Fumitoshi Matsuno, Kyoto University, Kyoto, Japan  
Hyun Myung, KAIST, Daejeon, Korea  
Sing Kiong Nguang, University of Auckland, Auckland, New Zealand  
Yongping Pan, National University of Singapore, Singapore  
Shinsuk Park, Korea University, Seoul, Korea  
Sukho Park, DGIST, Daegu, Korea  
Chang-Kyung Ryoo, Inha University, Incheon, Korea  
William Singhose, Georgia Institute of Tech., Atlanta, GA, U.S.A.  
Metin Sitti, Carnegie Mellon University, Pittsburgh, PA, U.S.A.  
Young Ik Son, Myongji University, Kyonggi, Korea  
Xiaojie Su, Chongqing University, Chongqing, China  
Young Soo Suh, University of Ulsan, Ulsan, Korea  
Sangkyung Sung, Konkuk University, Seoul, Korea  
Yang Tang, East China Univ. of Sci. and Tech., Shanghai, China  
Huanqing Wang, Carleton University, Ottawa, Canada  
Guang-Hong Yang, Northeastern University, Liaoning, China  
Bin Yao, Purdue University, West-Lafayette, IN, U.S.A.  
Sooyeong Yi, Seoul National Univ. of Sci. and Tech., Seoul, Korea  
Jun Yoneyama, Aoyama Gakuin University, Kanagawa, Japan  
Sung Jin Yoo, Chung-Ang University, Seoul, Korea

**CONTACT OFFICE** : Institute of Control, Robotics and Systems, Suseo Hyundai-Ventureville 723, Bamgogae-ro 1-gil 10, Gangnam-gu, Seoul 06349, Korea. Tel: +82-2-6949-5806 Fax: +82-2-6949-5807, E-mail: journal@ijcas.com

Published by Institute of Control, Robotics and Systems and the Korean Institute of Electrical Engineers. Distributed by Springer. Printed by Dream Media. This journal is published bimonthly; on the first day of February, April, June, August, October, and December. This journal was supported by the Korean Federation of Science and Technology Societies Grant funded by the Korean Government (Ministry of Education). Subscription information is available at <http://www.ijcas.com> where full-text is available. It is printed on acid-free paper.

(Continued from outside back cover)

**Optimal LQ Tracking Control for Continuous-time Systems with Pointwise Time-varying Input Delay**  
C. Han and W. Wang 2243

**Robot and Applications**

**A Quadratic-cost Dual Control-based Approach for Optimal Trajectory Planning under Uncertainty**  
J. Kim, J.-S. Ha, and H.-L. Choi 2253

**Control of Twisting Manipulation Using a Multi-fingered Robotic Hand with a Common Rotational Axis**  
H. Jeong and Y. Ohno 2262

**Intelligent Robotic Gripper with Adaptive Grasping Force**  
S.-J. Huang, W.-H. Chang, and J.-Y. Su 2272

**Positioning Control of an Underwater Robot with Tilting Thrusters via Decomposition of Thrust Vector**  
J. Bak, H.-N. Nguyen, S. Park, D. Lee, T.W. Seo, S. Jin, and J. Kim 2283

**Coupled Disturbance Reconstruction by Sliding Mode Observer Approach for Nonlinear System**  
Y. Sun, J. Yu, Z. Li, and Y. Liu 2292

**Enhanced Transparency Dual-user Shared Control Teleoperation Architecture with Multiple Adaptive Dominance Factors**  
Z. Lu, P. Huang, P. Dai, Z. Liu, and Z. Meng 2301

**Lyapunov-based Model Predictive Control for Tracking of Nonholonomic Mobile Robots under Input Constraints**  
C. Liu, J. Gao, and D. Xu 2313

**Analysis of the Effects of Communication Delays for Consensus of Networked Multi-agent Systems**  
M. Allen-Prince, C. Thomas, and S. Yi 2320

**Robust Proportional-derivative Control on SO(3) with Disturbance Compensation for Quadrotor UAV**  
A. P. Sandiwan, A. Cahyadi, and S. Herdjunanto 2329

**Position and Angle Control for a Two-wheel Robot**  
C.-H. Chiu and Y.-F. Peng 2343

**Winch-integrated Mobile End-effector for A Cable-driven Parallel Robot with Auto-installation**  
D. Wang, J. Ahn, J. Jung, J.-A. Seon, J.-O. Park, S. Y. Ko, and S. Park 2355

**Torque Sensorless Force/position Decentralized Control for Constrained Reconfigurable Manipulator with Harmonic Drive Transmission**  
F. Zhou, B. Dong, and Y. Li 2364

**Active Disturbance Rejection Tracking Control for a Nonlinear Pneumatic Muscle System**  
H. Yang, Y. Yu, J. Qiu, and C. Hua 2376

**Intelligent Control and Applications**

**Analysis on Robust Passivity of Uncertain Neural Networks with Timevarying Delays via Free-matrix-based Integral Inequality**  
S.-P. Xiao, H.-H. Lian, H.-B. Zeng, G. Chen, and W.-H. Zheng 2385

**State Augmented Feedback Controller Design Approach for T-S Fuzzy System with Complex Actuator Saturations**  
J. Zhang, W.-B. Xie, M.-Q. Shen, and L. Huang 2395

**Global Dissipativity Analysis for Memristor-based Uncertain Neural Networks with Time Delay in the Leakage Term**  
J. Liu and R. Xu 2406

**Adaptive Neural Dynamic Surface Control for a General Class of Stochastic Nonlinear Systems with Time Delays and Input Dead-zone**  
W.-J. Si, X.-D. Dong, and F.-F. Yang 2416

**Neural-network-based Fuzzy Logic Control of a 3D Rigid Pendulum**  
K. Zou and X. Ge 2425

**TECHNICAL NOTES AND CORRESPONDENCE**

**On the Asymptotic Accuracy of Reduced-order Models**  
D. Casagrande, W. Krajewski, and U. Viano 2436

**Accurate Pinch Detection Using Recent Finite Measurements for Automotive Anti-pinch Sunroof Systems**  
J. M. Pak, S. J. Kang, D. S. Pae, and M. T. Lim 2443

**A Robust Speed Controller with Smith Predictor for A PMSM Drive System with Time Delay**  
Q. Zhu, L. Xiong, and H. Liu 2448

**Unmanned Aerial Vehicle Guidance Law for Ground Target Circumnavigation Using Range-based Measurements**  
M. Zhang, P. Tian, and X. Chen 2455

**INDEXED IN** Science Citation Index Expanded (SciSearch), SCOPUS, INSPEC, Google Scholar, ProQuest, Current Contents/Engineering, Computing and Technology, EI-Compendex, Journal Citation Reports/Science Edition, OCLC, Summon by Serial Solutions, Korea Citation Index.