

# Control Theory and Technology

Volume 23 · Number 1 · February 2025

## RESEARCH ARTICLES

**Active vibration control for rotating machines with current-controlled electrodynamic actuators and velocity feedback of the machine feet based on a generalized mathematical formulation**

U. Werner 1

**Robust-optimal control of electromagnetic levitation system with matched and unmatched uncertainties: experimental validation**

A. Pandey · D.M. Adhyaru 28

**Reduction of losses in electric power distribution system-dynamic reconfiguration case study**

B. Novoselnik · D. Bago · J. Matuško · M. Baotić 49

**Adaptive optimal control system design for semi-active suspension system by supposing variable parameters under exogenous road disturbance**

V.N. Hoang · F. Deng · C.N. Van 64

**Design of energy-saving driving strategy based on proximal policy optimization considering urban transport information**

Q. Liu · D. Sun · H. Chen · D. Li · P. Wang 74

**Application of feedforward and recurrent neural networks for model-based control systems**

M. Krok · W.P. Hunek · S. Mielczarek · F. Buchwald · A. Kolender 91

**Predictor-based sampled-data output-feedback control for feedforward nonlinear time-delay systems**

W. Zhang · W. Pan · X. Zhang · Q. Liu 105

**Data-based neural controls for an unknown continuous-time multi-input system with integral reinforcement**

Y. Lv · J. Zhao · W. Zhang · H. Chang 118

**Optimal condition analysis of target localization using multi-agents with uncertain positions**

Y. Hou · N. Hao · F. He · C. Xie · Y. Yao 131

**Global adaptive output feedback control of nonlinear time-delay systems with measurement uncertainty**

W. Cai · X. Jia · X. Ju 145

**Edge computing aileron mechatronics using antiphase hysteresis Schmitt trigger for fast flutter suppression**

T. Yin · D. Huang · X. Zhang 153

Volume 23 · Number 2 · May 2025

## RESEARCH ARTICLES

**Stability analysis of distributed Kalman filtering algorithm for stochastic regression model**

S. Xie · D. Gan · Z. Liu 161

**New smoothed-state estimation for correlated process and measurement noises**

F.-X. Chen · L.-H. Geng · B. Ninness · Y.-L. Zhang 176

**Integral terminal sliding mode augmented finite-time visual servo control of omni-directional mobile manipulators**

Y. Liu · T. Zhu · Q. Li · J. Zhang 193

**Gradient-free distributed online optimization in networks**

Y. Liu · W. Zhao · N. Zhang · D. Lv · S. Zhang 207

**Effective convolution mixed Transformer Siamese network for robust visual tracking**

L. Chen · Y. Liu · Y. Wang 221

**Cascade explicit tube model predictive controller: application for a multi-robot system**

E. Soleimani · A. Nikoofard · E. Nejabat 237

**Event-triggered control for a class of large-scale nonlinear systems with neutral delays and unknown backlash-like hysteresis**

Y. Feng · W. Pan · Y. Qi · X. Zhang 253

**Cooperative RISE learning-based circumnavigation of networked unmanned aerial vehicles with collision avoidance and connectivity preservation**

J. Ghommam · A. Ayeb · B. Brahmi · M. Saad 266

**Smooth switching mechanism-based adaptive integral terminal SMC for PMSM servo system with stator voltage saturation and unknown disturbances**

X. Meng · H. Yu · J. Zhang · Q. Yang 294

**Robust decoupled sliding mode control for active suspension systems with prescribed tracking performance**

J. Peng · X. Shi · Y. Hu 310

**Output feedback control of nonlinear time-delay systems with multiple uncertainties via an event-triggered strategy**

W. Yu · Q. Chen · H. Zhou · X. An · Q. Liu 321

Volume 23 · Number 3 · August 2025

## EDITORIAL

**Editorial for special issue on ADRC: new ADRC developments in Ibero-America**

H. Sira-Ramírez · M. Ramírez-Neria · A. Luviano-Juárez · J. Cortés-Romero · J. González-Sierra 341

## RESEARCH ARTICLES

**A robust MP-ADRC-based strategy for uncertain minimum phase systems**

J.A. Gouvêa · A.R.L. Zachi · L.M. Fernandes · T.R. Oliveira 345

**LADRC method referring to the integral chain model: design of dual-loop disturbance compensation and engineering verification**

Y. Qin · H. Hu · J. Yang 364

**Sensing-noise reduction in active disturbance rejection controllers: a permanent magnet synchronous generator-based wind turbine example**

M.A. Aguilar-Orduña · B.C. Gómez-León · H. Sira-Ramírez · R.A. Garrido-Moctezuma 378

**Decoupling control for tailless aircraft based fractional-order error extended state observer**

Y. Hu · M. Zhao · J. Song · W. Li · Y. Liu 397

**Kinematic modeling and control of an omnidirectional mobile robot subject to wheel slippage and lateral and longitudinal sliding**

C.B. Bárcenas-Presteguí · M. Velasco-Villa · J. González-Sierra · J.I. Aguilar-Pérez 410

**Data-driven adaptive distributed optimal disturbance rejection control of frequency regulation in nonlinear power systems**

C. Yu · X. Qi · W. Wu · H. Deng · M. Du · W. Zhang · T. Wang 423

**Overcoming inclined surface challenges in Mecanum-wheeled robots using active disturbance rejection control**

J.C.O. Hernández · D.I.R. Almeida · E.V.G. Solís 437

**Robust control barrier functions based on active disturbance rejection control for adaptive cruise control**

J. Arcos-Legarda · A. Hoyos · H. García Arias 454

**On the stability condition of active disturbance rejection control with time-varying bandwidth observer**

D. Song · S. Chen · W. Xue · Z. Zhao 464

**On Mason Reset Based control and the scale of integration**

Y. Hu · Z. Gao 479

**Admittance-based robot force control without velocity and force sensors**

J.A. Caballero-Mora · R. de Jesús Portillo-Vélez · J.A. Vásquez-Santacruz · A. López-González · E.G. Hernández-Martínez 494

**Frugal model predictive control and active disturbance rejection for laser beam steering systems**

R.I. Vázquez-Cruz · E. Castellanos-Velasco · J.F. Guerrero-Castellanos 513

**Exponential stabilization of an  $n$ -star thermoelastic network system based on time-varying gains extended state observer**

L. Zheng · L. Wang · Z. Gao 529

**Active disturbance rejection control with cascade generalized proportional integral observer: application to the current control of grid-connected converters**

H.D. Rojas · N.L. Díaz · H.E. Rojas · J. Cortés-Romero 543

**Modeling and active disturbance rejection control of a tilt-rotor UAV**

V.-G. Sánchez-Meza · Y. Lozano-Hernández · N. Lozada-Castillo · M. Ramírez-Neria · A. Luviano-Juárez 563

**Volume 23 · Number 4 · November 2025**

RESEARCH ARTICLES

**Stabilization of second-order bilinear systems with time delay by a class of bounded feedbacks**

K. El Kazoui · H. Ezzaki 579

**STP-based verification of extended finite multi-potential games**

Z. Zhang · H. Peng · J. Song · Z. Chen 590

**Parameter identification of magnetic levitation system based on modulation function method**

T. Du · X. Fan · S. Feng 602

**Perturbation control based on the antisymmetric structure of boost converters**

F.J. Rosas · J.d.J. Rubio · M. Olan · E. Orozco · R. Balcazar · J.A. Meda-Campaña · C. Aguilar-Ibañez · S.M. Orozco 618

**Exponential stabilization of 1-D wave network with boundary delay**

Y. Xie · R. Gao 629

**Disturbance rejection of PMSM speed servo system: an adaptive observer approach**

Z. Huo · Z. Ping · Y. Jia · J. Hui · Y. Huang · J.-G. Lu 640

**CPG-based gait planning and model-independent adaptive time-delay control for lower limb rehabilitation exoskeleton robots**

Z. Sun · W. Chen · B. Chen · H. Wang · J. Zheng · Z. Man 650

**Adaptive  $H_\infty$  finite-time boundedness control for a set of nonlinear singular Hamiltonian systems**

S. He · L. Sun · R. Yang 663

**PLC transition sequence identification based on logical reduction**

Y. Luo · J. Ye · J. Zhou · J. Liu · L. Jiang 672

**Automatic landing of fixed-wing aircraft with  
constrained algebraic model predictive control**

T. Ulukır · U. Dursun · İ. Üstoğlu 688

**On the exponential stability and instability analyses  
of switched second- and higher-order linear systems  
via a novel application of differential inequalities:  
part 1 (theory)**

Y.V. Venkatesh 702

**On the exponential stability and instability analyses  
of switched second- and higher-order linear systems  
via a novel application of differential inequalities:  
part 2 (Illustrations)**

Y.V. Venkatesh 721

**Volume contents I**