SCIS 控制科学精选文章目录

✧ 热点专题.................................................................................................................. - 1 -
  Special Focus on Control and Analysis for Stochastic Systems.............................. - 1 -
  Special Focus on Cyber-Physical Systems................................................................ - 1 -
  Special Topic: Entanglement of Control and Optimization.................................... - 2 -
✧ 人工智能系统 ......................................................................................................... - 2 -
✧ 复杂网络与系统 ..................................................................................................... - 4 -
✧ 分布式控制与优化 ................................................................................................. - 5 -
✧ 故障诊断与控制系统安全 ..................................................................................... - 8 -
✧ 滤波、估计与参数辨识 .......................................................................................... - 11 -
✧ 导航、制导与控制 ................................................................................................. - 12 -
✧ 网络化控制系统 .................................................................................................... - 14 -
✧ 非线性系统与控制 ................................................................................................. - 16 -
✧ 机器人与无人系统 ............................................................................................... - 21 -
✧ 鲁棒控制与自适应控制 .......................................................................................... - 24 -
✧ 随机系统与控制 .................................................................................................... - 27 -

<识别二维码查看网页版>
Special Focus on Control and Analysis for Stochastic Systems

Guest Editors: Xuejun XIE, Hiroaki MUKAIDANI, Weihai ZHANG

Fault estimation and fault-tolerant control for linear discrete time-varying stochastic systems
Tianliang ZHANG, Feiqi DENG, Yuan SUN & Peng SHI
Sci China Inf Sci, 2021, 64(10): 200201

Robust SOF Stackelberg game for stochastic LPV systems
Hiroaki MUKAIDANI & Hua XU
Sci China Inf Sci, 2021, 64(10): 200202
Keywords: stackelberg games; linear parameter varying stochastic systems; lpv; lpv stochastic systems; cross-coupled matrix equations; ccmes

Adaptive state-feedback stabilization of state-constrained stochastic high-order nonlinear systems
Rongheng CUI & Xuejun XIE
Sci China Inf Sci, 2021, 64(10): 200203

Event-triggered fault detection for nonlinear discrete-time switched stochastic systems: a convex function method
Xiushan JIA & Dongya ZHAO
Sci China Inf Sci, 2021, 64(10): 200204

Special Focus on Cyber-Physical Systems

Guest Editors: Shiyan HU, Changliu LIU, Vincenzo PIURI

Advanced virtual prototyping for cyber-physical systems using RISC-V: implementation, verification and challenges
Vladimir HERDT & Rolf DRECHSLER
Sci China Inf Sci, 2022, 65(1): 110201

Event-triggered robust MPC of nonlinear cyber-physical systems against DoS attacks
Qi SUN, Jicheng CHEN & Yang SHI
Sci China Inf Sci, 2022, 65(1): 110202

Label propagation dictionary learning based process monitoring method for industrial process with between-mode similarity
Keke HUANG, Shijun TAO, Yishun LIU, Chunhua YANG & Weihua GUI
Sci China Inf Sci, 2022, 65(1): 110203

Wireless/wired integrated transmission for industrial cyber-physical systems: risk-sensitive co-design of 5G and TSN protocols
Yajing ZHANG, Qimin XU, Xinping GUAN, Cailian CHEN & Mingyan LI
Sci China Inf Sci, 2022, 65(1): 110204
Special Topic: Entanglement of Control and Optimization

Guest Editors: Zhong-Ping JIANG, Tengfei LIU

Reinforcement learning for optimal tracking of large-scale systems with multitime scales
Jinna LI, Hao NIE, Tianyou CHAI & Frank L. LEWIS
Sci China Inf Sci, 2023, 66(7): 170201

Data-driven cooperative optimal output regulation for linear discrete-time multi-agent systems by online distributed adaptive internal model approach
Kedi XIE, Yi JIANG, Xiao YU & Weiyao LAN
Sci China Inf Sci, 2023, 66(7): 170202

Reinforcement learning-based unknown reference tracking control of HMASs with nonidentical communication delays
Yong XU, Zheng-Guang WU, Wei-Wei CHE & Deyuan MENG
Sci China Inf Sci, 2023, 66(7): 170203

Predefined-time distributed multiobjective optimization for network resource allocation
Kunpeng ZHANG, Lei XU, Xinlei YI, Zhengtao DING, Karl H. JOHANSSON, Tianyou CHAI & Tao YANG
Sci China Inf Sci, 2023, 66(7): 170204

On the reinforcement learning extended state observer for a class of uncertain sampled-data control systems
Guojie TANG, Wenchao XUE, Haitao FANG & Kun ZHANG
Sci China Inf Sci, 2023, 66(7): 170205

Optimal output regulation for PMSM speed servo system using approximate dynamic programming
Zhaowu PING, Yingjie JIA, Bangguo XIONG, Hongwei ZHANG & Jun-Guo LU
Sci China Inf Sci, 2023, 66(7): 170206

Keywords: feedback; human feedback; ChatGPT; autonomous driving; autonomous intelligent systems

Keywords: temperature field reconstruction of heat source systems

Keywords: automatic train regulation; capacity limitation; cuckoo search algorithm; passenger flow information; train dwell time model

Keywords: obstacle avoidance in human-robot cooperative transportation with force constraint
Keywords: human-robot interaction; dynamic movement primitives; Gaussian mixture regression; GMR; collision avoidance; force constrain


Keywords: piezoelectric actuator; hysteresis model; frequency-dependence; neural Turing machine; neural network


Keywords: prior area searching; sound source localization; adaptively initialization; iterative search; indoor environment


Keywords: broad learning system; quantized minimum error entropy; robustness; minimum error entropy; convergence

He S D, Dai S L, Dong C. Adaptive synchronization control of uncertain multiple USVs with prescribed performance and preserved connectivity. Sci China Inf Sci, 2022, 65(9): 199201

Keywords: synchronization tracking control; unmanned surface vehicles; connectivity preservation; prescribed performance; adaptive control


Keywords: robotic ultrasound; robotic skill learning; learning from demonstration; force control; compliant manipulation


Keywords: car-following model; sparse data learning; xgboost; lstm; dynamic constraints


Keywords: reconnaissance; rcpsp; multi-mode; multi-skill; scheduling; multi-agent system


Keywords: target tracking; broad learning system; selective search algorithm; multi-cue tracking; tracking adaptability


Keywords: coke quality; gaussian function; prediction model; selection gene algorithm; vitrinite reflectance


Keywords: adaptive control; finite-time control; command-filtered backstepping; immersion and invariance


Keywords: ies; system modeling; assessment; operational optimization; data-driven
Keywords: fuzzy broad learning system; clustering; fuzzy c-means; classification; tsk fuzzy system
Keywords: near-infrared spectroscopy; cerebral oxygen saturation; oximeter; rso2; wearable

Chi Si, Zhang X, Li M, et al.

Keywords: discrete-time multiagent system; unknown dynamics; optimal consensus control; β-PI algorithm; reinforcement learning
Keywords: distributed algorithm; linear matrix equation; linear rate; least squares solution; optimization
Keywords: semi-tensor product of matrices; Boolean control networks; reachability; Mayer-type optimal control; aggregation method
Keywords: RIOHTTrack full-scale track; Caputo fractional derivative; variable-order fractional; modified Burgers model; rutting prediction
Keywords: asymptotical stability; continuous-time probabilistic logic network; semi-tensor product of matrices; set stability
Chen J, Li X. Toward the minimum vertex cover of complex networks using distributed potential games. Sci China Inf Sci, 2023, 66(1): 112205
Keywords: minimum vertex cover; Nash equilibrium; convergence rate; scale-free network; random graph
Keywords: complex network; asphalt pavement; structure evaluation; longitudinal; RIOHTTrack
Li X J, Li C, Li X. The impact of information dissemination on vaccination in multiplex networks. Sci China Inf Sci, 2022, 65(7): 172202
Keywords: evolutionary game theory; epidemic modeling; network dynamics
Keywords: boolean networks; minimal observability; semi-tensor product

Keywords: complex networks; finite-horizon $\infty$ partial-nodes-based state estimation; gain variations; backward recursive riccati difference equations; integral measurements


Keywords: boolean control networks; set stabilization; state-triggered impulses; hybrid-index model; semi-tensor product of matrices

Cheng C, Yu C B. **Social conformity creates consensus and strong diversity of Hegselmann-Krause opinion dynamics.** Sci China Inf Sci, 2022, 65(2): 129202

Keywords: opinion dynamics; hegselmann-krause model; social network; conformity; multi-agent systems


Keywords: opinion dynamics; multi-agent systems; social network; complex network; stochastic systems; swarm intelligence

Wang Y, Cao J D. **Final size of network epidemic models: properties and connections.** Sci China Inf Sci, 2021, 64(7): 179201

Keywords: epidemic models; complex networks; final size; degree distribution; control effort

Xing Y, Hong Y G, Fang H T. **A novel opinion model for complex macro-behaviors of mass opinion.** Sci China Inf Sci, 2021, 64(2): 129205

Keywords: social networks; opinion dynamics; degroot model; friedkin-johnson model; mass opinion; macro-behavior

Kao Y G, Li H. **Asymptotic multistability and local S-asymptotic $\omega$-periodicity for the nonautonomous fractional-order neural networks with impulses.** Sci China Inf Sci, 2021, 64(1): 112207

Keywords: fractional-order neural networks; local $s$-asymptotic omega-periodicity; asymptotic multistability; impulse; nonautonomous

** 分布式控制与优化


Keywords: distributed algorithm; stochastic; stripe observations; zeroth-order method; distributed optimization

Zhang Y, Su Y F. **Consensus of hybrid linear multi-agent systems with periodic jumps.** Sci China Inf Sci, 2023, 66(7): 179204

Keywords: Multi-agent systems; Consensus; Hybrid systems; Hybrid output feedback; Cooperative control


Keywords: cooperative control; switching cost functions; model predictive control; automatic train operation; railway train

Keywords: distributed optimization; multiobjective optimization; predefined-time algorithms; time-based generators; weighted $L_p$ preference index


Keywords: heterogeneous multiagent systems; HMAS; reinforcement learning; RL; optimal output synchronization; communication delays


Keywords: adaptive dynamic programming; cooperative control; distributed adaptive internal model; multi-agent systems; optimal output regulation


Keywords: reinforcement learning; singular perturbation; multitime scales; data-driven control


Keywords: formation control; event-triggered control; multi-agent systems; fully distributed control; directed graph


Keywords: blockchain; smart grid; rating protocol; incentive mechanism; hybrid trading


Keywords: multi-robot system; region tracking; robust control; adaptive control; distributed control


Keywords: cyber-physical microgrid; load frequency control; quadratic convex framework; stability analysis


Keywords: constraint optimization; noisy observation; output variation; Markovian switching target; distributed algorithm; DC microgrid


Keywords: distributed convex optimization; strongly convex optimization; mirror descent; quantized communication; Bregman divergence


Keywords: dynamic wireless charging; electric vehicles; multi-objective optimization; constrained adaptive particle swarm optimization

Keywords: nonlinear multi-agent systems; uniform quantizer; logarithmic quantizer; dynamic gain; δ-asymptotic distributed consensus
Lv Y Z, Li Z K. Is fully distributed adaptive protocol applicable to graphs containing a directed spanning tree? Sci China Inf Sci, 2022, 65(8): 189203
Keywords: multi-agent system; consensus; fully distributed adaptive protocol; directed spanning tree; robust protocol design
Keywords: microgrid; hierarchical control architecture; cyber-physical system security; denial-of-service attack; adaptive secondary frequency control
Keywords: distributed optimization; multi-agent network; barzilai-borwein step sizes; optimization algorithms; convergence rate
Keywords: semi-tensor product of matrices; weighted congestion game; evolutionary dynamics; intermittent control; nash equilibrium
Geng X X, Zhao W X. Randomized difference-based gradient-free algorithm for distributed resource allocation. Sci China Inf Sci, 2022, 65(4): 142205
Keywords: resource allocation; distributed algorithm; randomized difference
Keywords: distributed optimization; random differential equations; stationary process; noise-to-state exponential stability
Keywords: multiagent systems; internal model; unknown leaders; output regulation; output-feedback
Keywords: multi-agent systems; leader-following; consensus; global optimization; distributed optimal protocol
Chen L, Xin B, Chen J. Interactive multiobjective evolutionary algorithm based on decomposition and compression. Sci China Inf Sci, 2021, 64(10): 202201
Keywords: multiobjective optimization; interactive decision making; preference incorporation; decomposition; compression
Yang Z Q, Zhang Q, Chen Z Q. Finite-time distributed projection scheme for intersections of convex sets. Sci China Inf Sci, 2021, 64(9): 199203
Keywords: multi-agent systems; intersections of convex sets; distributed optimization; finite-time; consensus
Keywords: quantum computing; beetle antennae search; portfolio selection; optimization; finance problem

Keywords: multi-agent system; reinforcement learning; game theory; complex network; bipartite graph

Keywords: multi-agent systems; time-varying formation; states observer; event-triggered

Keywords: plug-in hybrid electric vehicle; energy management strategy; multi-objective; pontryagin’s minimum principle; particle swarm optimization

Keywords: dynamic economic dispatch; distributed optimization; discrete-time algorithm; active power flow limit; transmission line loss

Keywords: cyber-physical systems; attack detection and identification; distributed optimization; security analysis; cyber attacks

Keywords: barrier functions; safety; safety-and-stability; Caputo’s fractional-order systems; nonlinear dynamical system

Keywords: false data injection attacks; sensor fusion; estimation; nonlinear filter; cyber-physical systems

Keywords: fault estimation; potential factor; Bellman-Gronwall theory; iterative learning scheme; norm theory

Keywords: time-delay LPV systems; geometric approach; fault detection; fault isolation; exact-memory; rough-memory

Keywords: strongly fault prognosability; decentralized fault prognosis; fault prediction and isolation; discrete event systems; partially-observed discrete event systems


Keywords: active disturbance rejection control; fault diagnosis; disturbance; abrupt incipient fault; soft incipient fault


Keywords: fault estimation; high order iterative learning scheme; nonlinear system; nonlinear uncertainties; iterative learning control


Keywords: generalized diffusion process; stochastic model parameters; remaining useful life; maximum likelihood estimation; sequential Bayesian methods


Keywords: interconnected nonlinear system; actuator fault; DoS attack; disturbance; fault-tolerant control; event-driven control


Keywords: output synchronization; false data injection attacks; adaptive compensators; heterogeneous multi-agent systems; secure control


Keywords: supervised learning; deep learning; regularized autoencoder; process monitoring; quality-relevant fault detection


Keywords: incipient fault; current sensor; fault diagnosis; wind power; instantaneous amplitude; fault location


Keywords: latent mapping; manifold learning; local linear embedding; te process; fault detection


Keywords: cyber-physical systems; input-to-state stability; asynchronous dos attacks; h∞ observer; event-triggered control


Keywords: fault estimation; unknown input observer; markovian jump systems; dynamic event-triggered mechanism; time-varying delays
Keywords: safety criteria; barrier function; fault safety; multi-hypersphere method; dynamic system
Keywords: process monitoring; label propagation; dictionary learning; between-mode similarity; graph laplacian regularization
Keywords: degradation; condition based maintenance; prognostics; life prediction; replacement
Keywords: multivariate alarm design; belief-rule-based method; nonlinear time-varying process; sequential monte carlo
Zhu Z R, Chai Y, Yang Z M. A novel kind of sufficient conditions for safety judgement based on control barrier function. Sci China Inf Sci, 2021, 64(9): 199205
Keywords: safety criterion; control barrier function; fault safety; complex system; sufficient condition
Keywords: prognostics; remaining useful life; replacement; spare part ordering; degradation model
Keywords: privacy security; control systems; privacy preserving; privacy security in control systems; reliability
Keywords: health-state assessment; belief rule base; interpretability; complex systems
Keywords: bumpless transfer; fault detection; multiple lyapunov functions; state-dependent switching law; switched systems
Keywords: remaining useful life; degradation model; brownian motion; fractional brownian motion; long-range dependence
Keywords: actuator fault; fault-tolerant control; event-triggered control; sliding mode control; composite observer
Keywords: industrial process; fault classification; parametric t-sne; nonlinear dimension reduction; fault diagnosis


Keywords: fault detection; linear discrete-time systems; integral measurements; parity space; optimization problem


Keywords: sparse representation; dictionary learning; local preserving projection; fault diagnosis; multivariable system


Keywords: high-speed train; bogie; long-short-term memory; lstm; fault diagnosis; recurrent neural network; rnn


Keywords: online rul estimation; parameter uncertainty; model uncertainty; bayesian method; ecm algorithm; bayesian model averaging

滤波、估计与参数辨识


Keywords: multi-target tracking; data association; random coefficient matrices; Kalman filter; maneuvering targets


Keywords: cyber physical systems; event-triggered estimation; injection attack; optimal state estimation; optimal filtering


Keywords: sparse representation; recursive least squares; l1-regularization; l2-regularization; sparse model; parameter estimation


Keywords: system identification; Crämér-Rao lower bound; truncated data; precise measurement; set-valued measurement


Keywords: attitude estimation; integrated system; ckf; vision atypical observations; narx


Keywords: state fusion estimation; nonlinear systems; heavy-tailed noise; intermittent observations; multivariate t-distribution

Keywords: equivalent input disturbance; EID; linear matrix inequality; LMI; linear quadratic regulator; LQR; particle swarm optimization; PSO; periodic disturbance; repetitive control

Shi S, Fei Z Y, Zhao X D. Time-scheduled observer design for switched linear systems with unknown inputs. Sci China Inf Sci, 2022, 65(7): 179204

Keywords: switched linear systems; unknown inputs; admissible edge-dependent average dwell-time; multiple discontinuous lyapunov-like functions; observer design

Wang T, Cong S. An online quantum state filter with sparse disturbance and Gaussian noise. Sci China Inf Sci, 2022, 65(6): 169204

Keywords: online quantum state filter; oqsf; online alternating direction method of multipliers; oadm; iterative shrinkage threshold algorithm; ista; sparse disturbance; gaussian noise


Keywords: boundary control; active disturbance rejection control; backstepping method; fractional; mittag-leffler stable


Keywords: input-to-state stability; power systems large-scale discrete-time systems; adaptive event-triggering communication; deception attacks,


Keywords: state estimation; compressed sensing; open quantum systems; information process; continues weak measurement


Keywords: adaptive saturation; measurement outliers; multiplicative noises; nonlinear systems; recursive filtering


Keywords: distributed kalman filter; collective random observability; l-p-stable; l-p-exponentially stable; state estimation


Keywords: observability matrix; observable degree; singular value decomposition; scale transform invariance; linear system; linear relation


Keywords: observer design; singularly perturbed systems; discrete measurements; slow manifold; reduced-order observer

- 12 -
Keywords: SINS; RCNS; integrated navigation; starlight refraction; star pixel coordinates

Keywords: libration point; three-body problem; lunar exploration; cislunar space; flight scheme

Keywords: electronic map; multi-objective optimization; differential evolution algorithm; Beidou navigation system; high-speed train positioning

Keywords: gliding flight; optimal guidance; velocity control; deep reinforcement learning; intelligent decision

Keywords: pan-location mapping; planetary exploration; geo-visualization; Tianwen-1 mission; Zhurong rover

Keywords: multidebris active removal; mission planning; multiobjective optimization; drift-orbit transfer strategy; rendezvous strategy

Keywords: collective motion; distributed control; unmanned aerial vehicle; flocking control; swarm intelligence

Keywords: aerial refueling; station keeping; two-degree-of-freedom; additive state decomposition; varying mass

Keywords: fundamental matrix; minimal solution; planar motion; monocular vision; mobile robot

Keywords: surface to air missile sites; target detection; remote sensing images; area searching; deep learning

Duan G R, Zhao T Y. Parametric output regulation using observer-based PI controllers with applications in flexible spacecraft attitude control. Sci China Inf Sci, 2021, 64(7): 172210
Keywords: parametric control system design; multiobjective design; observer-based control; separation principle; pi regulator; constant signal tracking; disturbance decoupling and attenuation

Keywords: cooperative guidance; predictive guidance; target-attacker-defender scenario; missile guidance; aircraft active defense
Keywords: pigeon-inspired optimization; global continuous optimization problems; evolutionary game theory; adaptability; local optimum
Keywords: optimal trajectory; thrust-vector; transition control; v/stol; backward propagation
Keywords: angular velocity estimation; star sensor; blurred star images; star trail characteristics; unscented kalman filter
Keywords: unmanned aerial vehicle; uav; pose estimation; homography; least-squares estimation

Keywords: networked control systems
Keywords: networked control systems; tracking performance limitations; nonminimum phase zeros; unstable poles; multiple constraints
Keywords: Boolean control networks; realization; semi-tensor product of matrices; vertex partition; state transition graph
Keywords: discrete-time system; time-varying delay; stability; linear matrix inequality; matrix injection method
Keywords: distributed control; event-triggered control; data-driven control; discrete-time MASs
Keywords: periodic piecewise systems; networked control systems; network-induced delay; asynchronous switching; H-infinity control
Keywords: networked systems; structural controllability; cyber-physical systems; cpss; cyber topology design; matrix-weighted edges
Keywords: multiple transmission channels; dos attacks; lmi method; cyber-physical systems; input-to-state stability
Keywords: finite horizon optimal control; logical networks; semi-tensor product; quantification; HEV control
Wu X H, Mu X W. Novel dynamic event-triggered coordination for scaled consensus without continuous communication or controller update. Sci China Inf Sci, 2022, 65(10): 209202
Keywords: event-triggered; multiagent systems; consensus; coordination; controller
Keywords: binary-valued system; switched multi-agent system; recursive projection algorithm; consensus; jointly connected undirected topologies
Keywords: sliding mode control; time delay; uncertain system; state observer; event trigger
Keywords: optimal denial-of-service attack; scheduling; optimization; limited energy; deep reinforcement learning
Keywords: causality; descriptor system; impulse free; large scale system; networked dynamic system; singular system
Keywords: multiagent system; controllability; equivalent partition; tao’s equation; graph theory
Keywords: conditioning loads equivalent input disturbance; load frequency control; parameter uncertainties; wind power; air
Keywords: industrial cyber-physical systems; icps; 5g-tsn co-design; wireless/wired integrated network; risk-sensitive reinforcement learning; deterministic communication
Keywords: cyber-physical systems; nonlinear model predictive control; event-triggered mechanism; robust control; denial-of-service attacks
Keywords: virtual prototyping; risc-v; systemc tlm; verification
Keywords: platoon; merging; connected autonomous vehicle; multiagent system; distributed controller

Zhao J M. **Exponential stabilization of memristor-based neural networks with unbounded time-varying delays.** Sci China Inf Sci, 2021, 64(8): 189205
Keywords: memristor-based neural networks; exponential stabilization; discrete time delays; filippov solution; algebraic criterion

Keywords: control invariance; logical control networks; semi-tensor product of matrices; set stabilization; state-dependent delay

Keywords: cross-dimensional system; dimension-bounded system; vector product; invariant vector space; factorization

Keywords: feedback shift register; boolean networks; semi-tensor product; global stability; monotonicity

Keywords: consensus; multi-agent systems; bipartite consensus; antagonist interactions; networked systems

Keywords: spatiotemporal network; deep learning; vehicle emission; prediction; model modification

Li X D, Bai Y M, Dong X W, et al. **Distributed time-varying formation control with uncertainties based on an event-triggered mechanism.** Sci China Inf Sci, 2021, 64(3): 132204
Keywords: formation control; multi-agent systems; event-triggered; adaptive control

Keywords: dos attacks; event-triggered control; linear systems; stochastic systems; discrete-time systems; networked control systems

Zhang X Y, Zhu S Y. **Distributed energy trading with transmission cost: a Stackelberg game approach.** Sci China Inf Sci, 2021, 64(2): 129201
Keywords: smart grid; energy trading; transmission loss; stackelberg game; best response

**非线性系统与控制**

Xu L, Su Y F, Cai H. **Event-triggered tracking control for a class of nonholonomic systems in chained form.** Sci China Inf Sci, 2023, 66(7): 172201
Keywords: event-triggered; nonholonomic systems; strict Lyapunov function; tracking; integral input-to-state stable

Keywords: approximate dynamic programming; disturbance rejection; optimal output regulation; permanent magnet synchronous motor; speed tracking


Keywords: switched positive systems; nonlinear systems; stability analysis; time-varying delays; impulsive effects


Keywords: mean square stability; hybrid index model; random impulse; discrete-time impulsive systems; hybrid systems


Keywords: high-order nonlinear systems; output-constrained subset; barrier-transformed function; state-feedback stabilization; uniformly asymptotic stability


Keywords: adaptive control; dynamic surface control; high-order strict feedback nonlinear systems; parameter estimation; parametric uncertainties


Keywords: spatiotemporal neural networks; discontinuous activations; time-varying coefficients; fixed-time stabilization; aperiodically switching control


Keywords: delayed complex-valued neural networks; adaptive event-trigger scheme; stabilization; discontinuous Lyapunov functional; LMIs


Keywords: quasi-linear second-order systems; partitioned eigenstructure assignment; parametric approach; Sylvester matrix equation; output feedback


Keywords: time-delay systems; fully actuated systems; controller designs; input delays; time-varying delays


Keywords: adaptive neural control; deterministic learning; neural networks; pattern-based control; high gain observer; pure-feedback systems
Duan G R. **Fully actuated system approaches for continuous-time delay systems: part 1. Systems with state delays only.** Sci China Inf Sci, 2023, 66(1): 112201

Keywords: time-delay systems; fully actuated systems; controller designs; controllability; stabilizability


Keywords: Boolean control network; Boolean network; finite state machine; learning system; semi-tensor product; STP; ASST

Lu X D, Li H T, Zhang X F. **Positivity and stability of timescale-type linear singular systems with time delays.** Sci China Inf Sci, 2022, 65(12): 222201

Keywords: positivity; stability; time delay; linear singular systems; timescale-type systems


Keywords: behavior formulation; finite state machines; controllability; reachability; semi-tensor product of matrices

Zhao T Y, Duan G-R. **Fully actuated system approach to attitude control of flexible spacecraft with nonlinear time-varying inertia.** Sci China Inf Sci, 2022, 65(11): 212201

Keywords: high-order fully actuated system; flexible spacecraft; time-varying nonlinear systems; attitude stabilization; attitude maneuvering

He X D, Geng Z Y. **Leader-follower formation control of underactuated surface vessels.** Sci China Inf Sci, 2022, 65(10): 209201

Keywords: underactuated surface vessel; leader-follower formation; lie group; formation feasibility; trajectory tracking


Keywords: shift register; stream cipher; observability; Boolean network; semi-tensor product


Keywords: time-delay systems; discrete-time systems; sub-fully actuation; control designs; feasibility


Keywords: nonlinear systems; tracking control; prescribed performance control; neural network; sum of squares

Mei K Q, Ding S H. **HOSM controller design with asymmetric output constraints.** Sci China Inf Sci, 2022, 65(8): 189202

Keywords: sliding mode control; finite-time convergence; constrained control; robust control; adding a power integrator


Keywords: nonlinear systems; ISpS inverse dynamics; unknown control direction; practical output tracking; global output feedback; adaptive compensation


Man Y C, Liu Y G. **Global adaptive stabilization for planar nonlinear systems with unknown input powers.** Sci China Inf Sci, 2021, 64(9): 199204

Keywords: predictive control; coordinated control; constraint; intelligent network information; diesel vehicle


Keywords: output feedback; homogeneous observer; unknown measurement sensitivity; adding a power integrator; reduced-order observer

Liu Y, Li W Q, Yao X X. **Quantized tracking control for nonlinear systems with unstable linearization.** Sci China Inf Sci, 2021, 64(7): 179205

Keywords: quantized tracking control; unstable linearization; nonlinear system; backstepping; globally uniformly bounded

Gao Z Y, Guo G. **A novel strategy to solve communication constraints for formation control of multi-AUVs.** Sci China Inf Sci, 2021, 64(7): 179204

Keywords: event-triggered; fixed-time stable; velocity observer; formation control; autonomous underwater vehicles


Keywords: multi-agent; nonvanishing disturbance; topology reconfiguration; containment control; convex parameters


Keywords: model predictive control; fast sampling systems; sampling delay; fractional-order; lagrange interpolation polynomial


Keywords: ride comfortability; black-box module; hybrid electric vehicles (hevs); genetic algorithm (ga); acceleration mode


Keywords: robust control; high-order nonlinear systems; time-varying sensitivity; predetermined bounded set; uncontrollable linearization


Keywords: fictitious play; nonlinear system; nash equilibrium; dynamic evolution; semi-tensor product of matrices


Keywords: stability analysis; positive switched nonlinear systems; t-s model; unstable subsystems; fast mdadt


Keywords: fault-tolerant control; attitude stabilization; signal quantization; adaptive fuzzy control; back-stepping control

Keywords: stability analysis; energy disturbance technique; convexity characteristic; pipes conveying fluid; nonlinear energy sink
Keywords: continuous potential game; finite element approach; finite potential sub-game; numerical solution; convergence
Keywords: tracking control; surgical robots; rcm constraints; metaheuristic optimization; recurrent neural network; rnn; redundant manipulator
Keywords: deterministic learning; dynamical pattern recognition; sampling sequence; synchronization
Ma R C, An S, Fu J. Dwell-time-based stabilization of switched positive systems with only unstable subsystems. Sci China Inf Sci, 2021, 64(1): 119205
Keywords: switched positive systems; multiple time-varying lyapunov functions; unstable modes
Keywords: stochastic nonlinear systems; time-delay; state feedback; dynamic-gain design; asymptotical stabilization
Keywords: continuous self-calibration; local observability; piece-wise constant systems; pwcs; observable degree; rotation scheme
Keywords: nonlinear systems; severe uncertainties; global stabilization; unknown input powers; switching adaptive control
Keywords: car-following control; road-slope approximation; hierarchical design; linear quadratic regulator; intelligent vehicle

チン 机器人与无人系统
Keywords: under-actuated biped robot; dynamic locomotion; trajectory free; key trend state; attitude control; foothold adjustment
Keywords: tail-sitter UAV; optimal control; trajectory optimization; robust optimization; uncertainty quantification; transition phases

Keywords: unmanned aerial vehicle; tilt-wing UAV; attitude control; hovering flight; velocity compensation

Keywords: adaptive control; receding horizon optimization; multi-objective control; intelligent vehicle; car-following control

Keywords: unmanned aerial vehicle; multiple sensor information fusion; self-localization; autonomous navigation; path planning

Keywords: haptic sensor; tactile; robot; multimodal fusion; sparse coding

Keywords: human-inspired intelligent robots; brain-inspired intelligence; decision making; visual cognition; musculoskeletal robots

Keywords: UAV; autonomous landing; terrain understanding; depth completion; semantic segmentation

Keywords: Unmanned Aerial Vehicle; UAV; Information Technology; Low-altitude airspace; IEEE standard; UAV operations

Keywords: SLAM; dynamic environments; indoor localization; graph-cut; robot navigation

Keywords: hypersonic vehicle; flexible skin; ultra-thermal protection; micro-channel; transpiration cooling

Keywords: fixed-time disturbance observer; fixed-time sliding mode control; quadcopter; trajectory tracking; nonsingular

Keywords: critical-contact manipulation; gecko-inspired microwedge adhesive; robotic end effector; half-scissor variable-scale actuator; tactile sensor


Keywords: tilt-rotor; unmanned aerial vehicle; flight control; nonlinear system identification; active model method; unscented Kalman filter


Keywords: underwater biomimetic vehicle; underwater robots; underwater vehicle-manipulator system; biomimetic robots; hydrodynamic modeling


Keywords: network; human guided smart-home; assistive agents; metaheuristic optimization; beetle antennae search; zeroing neural


Keywords: robot; manipulation skill learning; complex task; deep reinforcement learning; curriculum learning


Keywords: maximum power point tracking; mppt; swarm intelligence; metaheuristic algorithms; pressure-retarded osmosis; pro; harris hawks optimization; hho


Keywords: anatomical structure recognition; medical gastrointestinal robot; image guidance; cardia center; realtime tracking


Keywords: reinforcement learning; interaction learning; human-robot interaction; inaccurate dynamic model; time-varying uncertainties; compensation strategy; lower exoskeleton


Keywords: rehabilitation robot; gait training; modeling and optimization; subject-specific training; gait pattern generation


Keywords: exoskeleton; the aider system; sci subjects; safety; effectiveness


Keywords: snoring detection; strain sensor; sleeping quality monitoring; detection algorithm; wearable device


Keywords: quadrotor; target tracking; trajectory generation; b-spline; convex optimization

Keywords: trajectory prediction; dynamic bayesian network (dbn); long short-term memory (lstm); unsignalized intersections; motion intention


Keywords: adaptive control; robot manipulator; disturbance observer; sliding mode


Keywords: trajectory prediction; risk assessment; shared lateral control; model predictive control


Keywords: intelligent vehicle-infrastructure cooperation systems (i-vics); traffic information prediction; real time queue length; queue length estimation; traffic flow model


Keywords: exoskeleton; stair climbing; hybrid control; zero-force tracking; switching controller


Keywords: wearable energy harvesting; ubiquitous energy; energy control; wearable device; human body


Keywords: robotic dolphin; path following; 3-d; los guidance law; decoupling motion


Keywords: multi-objective genetic algorithm; gesture adaptation; human-robot interaction

鲁棒控制与自适应控制


Keywords: fixed-time-synchronized convergence; sliding mode control; perturbed MIMO systems


Keywords: extended state observer; reinforcement learning; uncertain sampled-data control system; discrete time-varying systems; measurement noise

Chen H, Guo L. **Convergence of adaptive MPC for linear stochastic systems.** Sci China Inf Sci, 2023, 66(5): 152201

Keywords: adaptive control; linear-quadratic optimal control; model predictive control; uncertain stochas-tic system; weighted least-squares

Keywords: stability analysis; time-delay systems; linear matrix inequalities; Lyapunov functional; periodically varying delay


Keywords: multi-agent systems; cooperative-competitive; bipartite output consensus; distributed control; adaptive control


Keywords: cascaded PDE-ODE system; actuator dynamics; uncertainties; adaptive control; distributed parameter systems


Keywords: spacecraft control; adaptive control; fault-tolerant control; transient performance guarantee; robustness


Keywords: adaptive control; output feedback; delay systems; logic-based switching; Lyapunov-Krasovskii theorem


Keywords: repetitive control; direct adaptive control; odd-harmonic frequencies; periodic disturbances; unknown linear systems


Keywords: Continuous-time 2-D nonlinear systems; 2-D Roesser T-S fuzzy affine systems; Static output feedback control; Piecewise affine controller; 2-D piecewise Lyapunov functions


Keywords: dynamic positioning ship; self-triggered control; neural networks; hysteresis input; robust control


Keywords: model predictive control; Lyapunov-based MPC; control approximation; learning-based control; nonlinear system


Keywords: h-infinity control; semi-markov jump system; mode-dependent adaptive control; logarithmic quantizer; matched uncertain nonlinearity

Keywords: linear system; output feedback; matched uncertainty; fixed-time control; observer
Keywords: actuator dynamics compensation; backstepping; euler-bernoulli beam; ode-pde cascade systems; stabilization
Keywords: noncooperative target tracking; unmanned aerial vehicles; noncertainty-equivalent observer; prescribed performance control
Keywords: uncertain system; active disturbance rejection control; control input gain
Keywords: mems gyroscopes; harmonic disturbance observer; global fast terminal sliding mode control; lumped system uncertainty; harmonic disturbance
Keywords: discrete-time nonlinear systems; pure-feedback systems; learning control; neural networks; persistent excitation
Keywords: drag-free satellite; saturation constraint; adaptive control; set-valued identification
Keywords: sampled-data control; adaptive control; variable sampling periods; stabilization; switching
Keywords: adaptive neural control; asymmetric time-varying output constraints; event triggering mechanism; input saturation; six-rotor uav systems
Keywords: cooperative output regulation; actuator failure; matched disturbance; mismatched disturbance; distributed finite-time observer; neural-adaptive control
Keywords: parameter identification; fir systems; binary-valued observations; asymptotically suboptimal tracking; adaptive control

Keywords: nonlinear time-delay system; finite-time simultaneous stabilization; adaptive control; hamiltonian function; robust stabilization


Keywords: interactive learning; actor-critic; reinforcement learning; physical human-robot interaction; lower-limb exoskeleton; human-powered augmentation; continuous domain; learning continuous coefficient


Keywords: active-disturbance-rejection control; particle swarm optimization; hydraulic force-servo system; propulsion; anchor-hole driller

Garcia-Rodriguez R, Parra-Vega V. **In-hand manipulation of a circular dynamic object by soft fingertips without angle measurement.** Sci China Inf Sci, 2021, 64(5): 152209

Keywords: optimal grasping; manipulation; soft-fingertips; circular object; stability-in-the-manifold


Keywords: adaptive control; actuator failures; infinite-dimensional systems; flexible spacecraft; fault tolerant control


Keywords: hybrid neural state machine; anns; snns; supervised learning; context-aware task; sequential task

**随机系统与控制**


Keywords: asynchronous; two-dimensional; Markov jump cyber-physical systems; denial-of-service attacks; hidden Markov model

Liu Z B, Li C Y. **Asymptotic behavior of least squares estimators for nonlinear autoregressive models.** Sci China Inf Sci, 2023, 66(6): 169204

Keywords: nonlinear autoregressive models; strong consistency; least squares; parameter identification; asymptotic behavior


Keywords: Markovian jump systems; MJSs; event-triggered mechanism; ETM; deception attacks; asynchronous control

Ge Z Q. **GE-semigroup method for controllability of stochastic descriptor linear systems.** Sci China Inf Sci, 2023, 66(3): 139201
Keywords: stochastic descriptor linear systems; controllability; observability; GE-semigroup; Hilbert spaces

Keywords: impulsive positive systems; interval stability/stabilization; copositive Lyapunov function; convergence rate

Keywords: LQ optimal control; partially observed stochastic system; random jumps; backward separation principle; optimal filtering

Keywords: stochastic time-varying nonlinear systems; Markovian switching; weak solutions; stochastic finite-time stability; finite-time control

Keywords: group consensus; multi-agent systems; additive noises; pure group consensus; hybrid group consensus

Keywords: adaptive DRL; non-stationary environment; model uncertainty; exploration and exploitation problem; parameter setting; LDP

Keywords: Markov jump systems; Singularly perturbed systems; semi-Markov jump systems; networked control systems; Robust control; try-once-discard protocol

Keywords: markov jump systems; dynamic event-triggering scheme (ets); self-triggering scheme (sts); denial-of-service (dos) attacks; resilient control

Keywords: power law; music melody variations; complementary communicitive distribution; entropy; functional optimization

Keywords: multicriteria optimization problems; Pareto optimality; cooperative difference games; discrete-time stochastic LQ theory; the difference Riccati equation; the difference Lyapunov equation

Keywords: uncertain stochastic systems; active disturbance rejection control; extended state observer; tracking; colored noise


Keywords: semi-markovian jump systems; time delay; finite-time boundedness; composite anti-disturbance control; uncertain system


Keywords: markovian jump systems; linear operator; interval stability; interval stabilization; robust h∞ control


Keywords: discrete-time stochastic system; pth moment d-stability; generalized h-representation; power vector; lmi region


Keywords: ev; simulation-based policy improvement; large action space; sampling


Keywords: pth moment exponential stability; discrete-time systems; nonlinear stochastic systems; difference operator; smoothness of conditional mathematical expectation


Keywords: stochastic markovian jump systems; exponential stability; distributed delays; time-varying delays; lyapunov function


Keywords: sensor network; distributed h∞ filtering; one-sided lipschitz condition; event-triggered protocol; random topology


Keywords: event-triggered scheme; fault detection; convex lyapunov function; discrete-time nonlinear systems; stochastic systems


Keywords: stochastic high-order nonlinear systems; full-state constraints; feasibility conditions; state-feedback stabilization; adaptive control


Keywords: stackelberg games; linear parameter varying stochastic systems; lpv; lpv stochastic systems; cross-coupled matrix equations; ccmes
Keywords: linear discrete stochastic systems; fault estimation; fault-tolerant control; state transition matrix; exponential stability in mean square

Cong X R, Zhao C. PID control of uncertain nonlinear stochastic systems with state observer. Sci China Inf Sci, 2021, 64(9): 192201
Keywords: pid controller; system uncertainty; nonlinear stochastic systems; global stability; state observer

Ge Z Q, Ge X C. An exact null controllability of stochastic singular systems. Sci China Inf Sci, 2021, 64(7): 179202
Keywords: stochastic system; impulse solution; exact null controllability; ito singular system; stochastic laplace transform

Keywords: dissipative filtering; hidden markov model; finite-time boundedness; markov jump systems; conic-type nonlinearity

Li H D, Han C Y, Zhang H S. Stabilization analysis for Markov jump systems with multiplicative noise and indefinite weight costs. Sci China Inf Sci, 2021, 64(5): 152203
Keywords: stabilization; indefinite; multiplicative noise; markov jump linear system

Keywords: infinite jump; time-delay; parametric uncertainties; exponential stability in mean square with conditioning; stochastic stability

Keywords: stochastic optimal control; maximum principle; delayed system; anticipated bsde; linear quadratic problem

Keywords: stochastic systems; multiple lyapunov function; almost surely exponential stability; impulsive jumps; semi-markovian switching; renewal process