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✧ 雷达技术与遥感图像处理 19

✧ 无线通信与通信系统

智能 6G 频谱、覆盖与使能技术专题，2023，Vol.66, No.3

Special Topic: Spectrum, Coverage, and Enabling Technologies for Intelligent 6G

Gest Editors: Wei XU, Yongming HUANG, Wei WANG, Fusheng ZHU, Xinsheng JI

[编者按] **Toward ubiquitous and intelligent 6G networks: from architecture to technology**

Xu, Wei; Huang, Yongming; Wang, Wei; Zhu, Fusheng; Ji, Xinsheng

Sci China Inf Sci, 2023, 66(3): 130300

[综述] **Pushing AI to wireless network edge: an overview on integrated sensing, communication, and computation towards 6G**

Zhu, Guangxu; Lyu, Zhonghao; Jiao, Xiang; Liu, Peixi; Chen, Mingzhe; Xu, Jie; Cui, Shuguang; Zhang, Ping

Sci China Inf Sci, 2023, 66(3): 130301

Keywords: sixth-generation; 6G; edge intelligence; artificial intelligence of things; AIoT; integrated sensing, communication, and computation; ISCC

[综述] **SpectrumChain: a disruptive dynamic spectrum-sharing framework for 6G**

Wu, Qihui; Wang, Wei; Li, Zuguang; Zhou, Bo; Huang, Yang; Wang, Xianbin

Sci China Inf Sci, 2023, 66(3): 130302

Keywords: dynamic spectrum sharing; blockchain; 6G

[综述] **Coverage enhancement for 6G satellite-terrestrial integrated networks: performance metrics, constellation configuration and resource allocation**

Sheng, Min; Zhou, Di; Bai, Weigang; Liu, Junyu; Li, Haoran; Shi, Yan; Li, Jiandong

Sci China Inf Sci, 2023, 66(3): 130303

Keywords: 6G satellite-terrestrial integrated networks; on-demand wireless coverage; performance metrics; constellation configuration; intelligent resource scheduling

Reconfiguring wireless environments via intelligent surfaces for 6G: reflection, modulation, and security

Xu, Jindan; Yuen, Chau; Huang, Chongwen; Ul Hassan, Naveed; Alexandropoulos, George C.; Di Renzo, Marco; Debbah, Merouane

Sci China Inf Sci, 2023, 66(3): 130304

Keywords: reconfigurable intelligent surface; physical-layer security; RIS-assisted wireless communications; phase modulation; 6G

Full-spectrum cell-free RAN for 6G systems: system design and experimental results

Wang, Dongming; You, Xiaohu; Huang, Yongming; Xu, Wei; Li, Jiamin; Zhu, Pengcheng; Jiang, Yanxiang; Cao, Yang; Xia, Xinjiang; Zhang, Ziyang; Jiang, Qingji; Wang, Pan; Liu, Dongjie; Zheng, Kang; Lou, Mengting; Jin, Jing; Wang, Qixing; Wang, Jiangzhou

Sci China Inf Sci, 2023, 66(3): 130305

Keywords: 6G; scalable cell-free massive MIMO; cell-free radio access network; prototype system

[观点] **6G extreme connectivity via exploring spatiotemporal exchangeability**

You, Xiaohu

Sci China Inf Sci, 2023, 66(3): 130306

Keywords: 6G;spatiotemporal exchangeability; MIMO; the six-generation; wireless communication

面向 B5G 的 XAI 使能的网络自动化专题，2024，Vol.67, No.7

Special Topic: XAI-Enabled Network Automation for 5G and Beyond: Move Closer to Zero-Touch

Gest Editors:

Scenarios analysis and performance assessment of blockchain integrated in 6G scenarios

Li, Bo; Cheng, Guanjie; Gao, Honghao; Yan, Xueqiang; Deng, Shuiguang

Sci China Inf Sci, 2024, 67(7): 170301

Keywords: blockchain; distributed ledger technology; DLT; 6G; performance assessment; 6G scenarios analysis; transaction arrival rate

Explainable-AI-based two-stage solution for WSN object localization using zero-touch mobile transceivers

Fang, Kai; Chen, Junxin; Zhu, Han; Gadekallu, Thippa Reddy; Wu, Xiaoping; Wang, Wei

Sci China Inf Sci, 2024, 67(7): 170302

Keywords: explainable AI; object localization; semidefinite relaxation; mobile transceiver; two-stage solution; closed-form solution

XRL-SHAP-Cache: an explainable reinforcement learning approach for intelligent edge service caching in content delivery networks

Xu, Xiaolong; Wu, Fan; Bilal, Muhammad; Xia, Xiaoyu; Dou, Wanchun; Yao, Lina; Zhong, Weiyi

Sci China Inf Sci, 2024, 67(7): 170303

Keywords: deep reinforcement learning; DRL; explainable artificial intelligence; XAI; multi-level cache; content delivery network; CDN; D3QN algorithm; Deep-SHAP

HEN: a novel hybrid explainable neural network based framework for robust network intrusion detection

Wei, Wei; Chen, Sijin; Chen, Cen; Wang, Heshi; Liu, Jing; Cheng, Zhongyao; Zou, Xiaofeng

Sci China Inf Sci, 2024, 67(7): 170304

Keywords: explainable artificial intelligence; light gradient boosting machine; machine learning; network intrusion detection; Shapley additive explanation; hybrid explainable neural network; HEN

Path signature-based XAI-enabled network time series classification

Sun, Le; Wang, Yueyuan; Ren, Yongjun; Xia, Feng

Sci China Inf Sci, 2024, 67(7): 170305

Keywords: network time series classification; explainable artificial intelligence; path signature; automated network management; recurrent neural network

Adaptive 5G-and-beyond network-enabled interpretable federated learning enhanced by neuroevolution

Cao, Bin; Zhao, Jianwei; Liu, Xin; Li, Yun
Sci China Inf Sci, 2024, 67(7): 170306
Keywords: 5G-and-beyond network; interpretable federated learning; mobile telemedicine system; fuzzy rough set theory; neuroevolution

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[Highly Cited in 202401]**Multi-stream signals separation based on space-time-isomeric (SPATIO) array using metasurface antennas**
Lou, Yangming; Jin, Liang; Wang, Huiming; Zhong, Zhou; Dai, Junyan
Sci China Inf Sci, 2024, 67(2): 122301
Keywords: multiple-input multiple-output; metasurface antenna; space-time-isomeric array; multipath channel; degree of freedom

[综述]**A survey on the network models applied in the industrial network optimization**
Dong, Chao; Xiong, Xiaoxiong; Xue, Qiulin; Zhang, Zhengzhen; Niu, Kai; Zhang, Ping
Sci China Inf Sci, 2024, 67(2): 121301
Keywords: industrial network; small-scale network; large-scale network; graph theory; system entropy

[综述] **A systematic review for smart identifier networking**
Zhang, Hongke; Feng, Bohao; Tian, Aleteng
Sci China Inf Sci, 2022, 65(12): 221301
Keywords: identifier networking; smart collaborative networking; smart integration identifier networking; smart identifier networking; the next-generation networking

[综述] **Vehicular mobility patterns and their applications to Internet-of-Vehicles: a comprehensive survey**
Cui, Qimei; Hu, Xingxing; Ni, Wei; Tao, Xiaofeng; Zhang, Ping; Chen, Tao; Chen, Kwang-Cheng; Haenggi, Martin
Sci China Inf Sci, 2022, 65(11): 211301
Keywords: vehicular mobility pattern; Internet-of-Vehicles (IoV); traffic flow; spatial point process; trajectory prediction; machine learning; deep learning

[综述] **A new 5G radio evolution towards 5G-Advanced**
Pang, Jiyong; Wang, Shaobo; Tang, Zhenfei; Qin, Yanmin; Tao, Xiaofeng; You, Xiaohu; Zhu, Jinkang
Sci China Inf Sci, 2022, 65(9): 191301
Keywords: 3GPP; 5G; NR; 5G-Advanced

[综述] **Vision, application scenarios, and key technology trends for 6G mobile communications**
Wang, Zhiqin; Du, Ying; Wei, Kejun; Han, Kaifeng; Xu, Xiaoyan; Wei, Guiming; Tong, Wen; Zhu, Peiying; Ma, Jianglei; Wang, Jun; Wang, Guangjian; Yan, Xueqiang; Xiang, Jiying; Huang, He; Li, Ruyue; Wang, Xinhui; Wang, Yingmin; Sun, Shaohui; Suo, Shiqiang; Gao, Qiubin; Su, Xin
Sci China Inf Sci, 2022, 65(5): 151301
Keywords: 6g mobile communication; 6g vision; application scenarios of 6g; terahertz communication; integrated sensing and communication; integrated intelligence and communication; ultra-massive mimo;

reconfigurable intelligent surface; co-frequency co-time full-duplex; holographic radio technology

[综述] **An overview on integrated localization and communication towards 6G**
Xiao, Zhiqiang; Zeng, Yong
Sci China Inf Sci, 2022, 65(3): 131301
Keywords: wireless localization; integrated localization and communication; cellular networks; b5g; 6g

[综述] **Key issues and algorithms of multiple-input-multiple-output over-the-air testing in the multi-probe anechoic chamber setup**
Pei, Huiling; Chen, Xiaoming; Huang, Xiaoyu; Liu, Xiaobo; Zhang, Xiaotong; Huang, Yi
Sci China Inf Sci, 2022, 65(3): 131302
Keywords: mimo ota testing; multi-probe anechoic chamber; 5g; spatial channel

[观点] **Next generation multiple access for IMT towards 2030 and beyond**
Ding, Zhiguo; Schober, Robert; Fan, Pingzhi; Poor, H. Vincent
Sci China Inf Sci, 2024, 67(6): 166301
Keywords: next generation multiple access; NGMA; non-orthogonal multiple access; NOMA; IMT 2030; ambient IoT; near-field communications

Achieving full mutualism with massive passive devices for multiuser MIMO symbiotic radio
Xu J R, Dai Z Y, Zeng Y, et al
Sci China Inf Sci, 2024, 67(9): 192301
Keywords: multiuser MIMO SR; backscattering; massive backscatter devices; asymptotic analysis; active and passive communication

Intelligent secure near-field communication
Zhang N, Zhang J F, Xing C W, et al
Sci China Inf Sci, 2024, 67(9): 199302
Keywords: near-field communication; artificial intelligence; physical layer security; deep reinforcement learning; hybrid analog-digital beamforming

Near-field channel estimation for extremely large-scale Terahertz communications
Yang S J, Peng Y Z, Lyu W T, et al
Sci China Inf Sci, 2024, 67(9): 192302
Keywords: Terahertz communications; near field; channel estimation; widely-spaced multi-subarray; sparse recovery

Legitimate monitor by proactive guarding for counter covert communications
Wang M L, Xia B, Wang J Z
Sci China Inf Sci, 2024, 67(8): 182301
Keywords: legitimate monitor; counter covert communication; full-duplex technology; outage probability; power allocation optimization

An ensemble and cost-sensitive learning-based root cause diagnosis scheme for wireless networks

with spatially imbalanced user data distribution
Wang, Qi; Pan, Zhiwen; Liu, Nan
Sci China Inf Sci, 2024, 67(7): 179301
Keywords: fault diagnosis; self-healing network; support vector machine; feature extraction; cost-sensitive learning

Channel modeling for MI-based wireless underground sensor networks with conductive objects
Deng, Shuhan; Liu, Guanghua; Chen, Ziwei; Zhang, Huaijin; Jiang, Tao
Sci China Inf Sci, 2024, 67(7): 179302
Keywords: channel modeling; magnetic induction; wireless underground sensor networks; equivalent circuit; conductive objects

Distortion-aware beamforming design for multi-beam satellite communications with nonlinear power amplifiers
Xiao, Xiang; You, Li; Wang, Kezhi; Gao, Xiqi
Sci China Inf Sci, 2024, 67(6): 162302
Keywords: multi-beam satellite communications; nonlinear power amplifier; energy and spectral efficiency tradeoff; resource efficiency; robust beamforming

Near-field wideband beam training for ELAA with uniform circular array
Chen, Yuhao; Dai, Linglong
Sci China Inf Sci, 2024, 67(6): 162303
Keywords: extremely large-scale antenna array (ELAA); uniform circular array (UCA); near-field; wideband; beam training

Beamforming design for covert broadcast communication with hidden adversary
Chen W Y, Ding H Y, Wang S L, et al
Sci China Inf Sci, 2024, 67(6): 162304
Keywords: low-probability-of-detection communication; multiple antennas; covertness performance; uncertain position; parameters optimization

Carbon efficiency modeling and optimization of solar-powered cellular networks
Zhao, Yuxi; Ge, Xiaohu; Yan, Wen; Han, Tao; Zhong, Yi
Sci China Inf Sci, 2024, 67(5): 152302
Keywords: cellular networks; renewable energy; carbon efficiency; convex optimization theory; dinkelbach

A credible traffic prediction method based on self-supervised causal discovery
Wang, Dan; Liu, Yingjie; Song, Bin
Sci China Inf Sci, 2024, 67(5): 152303
Keywords: wireless network traffic prediction; causal discovery; self-supervised

Joint UAV trajectory and communication design with heterogeneous multi-agent reinforcement learning
Zhou, Xuanhan; Xiong, Jun; Zhao, Haitao; Liu, Xiaoran; Ren, Baoquan; Zhang, Xiaochen; Wei, Jibo; Yin,

Hao
Sci China Inf Sci, 2024, 67(3): 132302
Keywords: unmanned aerial vehicle; UAV; trajectory design; resource allocation; multi-agent deep reinforcement learning; MADRL; heterogeneous agents

On the size generalizibility of graph neural networks for learning resource allocation
Wu, Jiajun; Sun, Chengjian; Yang, Chenyang
Sci China Inf Sci, 2024, 67(4): 142301
Keywords: size generalization; graph neural networks; resource allocation; permutation equivariance

Impact of non-ideal UE hardware on cell-free massive MIMO network with centralized operation
Li, Ning; Fan, Pingzhi
Sci China Inf Sci, 2024, 67(4): 142302
Keywords: cell-free massive MIMO; centralized operation; spatially correlated channels; hardware impairments; channel estimation; uplink spectral efficiency; optimal receive combining; pilot length design; fractional power control

Gradient sparsification for efficient wireless federated learning with differential privacy
Wei, Kang; Li, Jun; Ma, Chuan; Ding, Ming; Shu, Feng; Zhao, Haitao; Chen, Wen; Zhu, Hongbo
Sci China Inf Sci, 2024, 67(4): 142303
Keywords: federated learning; differential privacy; gradient sparsification; Lyapunov drift; convergence analysis

Energy consumption optimization for edge computing-supported cellular networks based on optimal transport theory
Lv, Xiangyu; Ge, Xiaohu; Zhong, Yi; Li, Qiang; Xiao, Yong
Sci China Inf Sci, 2024, 67(2): 122302
Keywords: optimal transport theory; edge computing; energy consumption reduction; dynamic voltage frequency scaling

When the gain of predictive resource allocation for content delivery is large?
Zhang, Chenzuo; Guo, Jia; Yang, Chenyang
Sci China Inf Sci, 2023, 66(12): 222302
Keywords: predictive resource allocation; performance analysis; average data rates; residual bandwidth; user mobility

Energy-efficient UAV-NOMA aided wireless coverage with massive connections
Tong, Yuqiao; Sheng, Min; Liu, Junyu; Zhao, Nan
Sci China Inf Sci, 2023, 66(12): 222303
Keywords: energy efficiency; non-orthogonal multiple access; trajectory optimization; unmanned aerial vehicle; wireless coverage

Robust channel estimation based on the maximum entropy principle
Hu, Zhengyang; Xue, Jiang; Li, Feng; Zhao, Qian; Meng, Deyu; Xu, Zongben

Sci China Inf Sci, 2023, 66(12): 222304
Keywords: channel estimation; maximum entropy principle; pseudo pilot; channel statistic characteristic; colorful noise

RIS-enhanced multi-cell downlink transmission using statistical channel state information
Li, Xiao; Jiang, Luoluo; Luo, Caihong; Han, Yu; Matthaiou, Michail; Jin, Shi
Sci China Inf Sci, 2023, 66(11): 212301
Keywords: fairness transmission; RIS; statistical CSI; WSSE

Manifold optimization assisted centralized hybrid precoding for cell-free massive MIMO systems
Luo, Jie; Fan, Jiancun; Wang, Yawen; Zhang, Jinbo
Sci China Inf Sci, 2023, 66(11): 219301
Keywords: cell-free massive MIMO; centralized hybrid precoding; block diagonalization constraint; Riemann gradient; alternate optimization

The capacity of k-connectivity d-dimensional wireless networks with node failure
Li, Wei; Liu, Junyu; Sheng, Min; Li, Jiandong
Sci China Inf Sci, 2023, 66(10): 209302
Keywords: Network capacity; network structure robustness; node failure; wireless communications; network connectivity

Transformer-based downlink precoding design in massive MIMO systems for 5G-advanced and 6G
Jiang, Hao; Dai, Linglong
Sci China Inf Sci, 2023, 66(9): 199301
Keywords: massive multiple-input multiple-output; MIMO; frequency division duplexing; FDD; deep learning; transformer; precoding

Intelligent reflecting surface assisted untrusted NOMA transmissions: a secrecy perspective
Wang, Dawei; Li, Xuanrui; He, Yixin; Zhou, Fuhui; Wu, Qihui
Sci China Inf Sci, 2023, 66(9): 192302
Keywords: intelligent reflecting surface; non-orthogonal multiple access; security; untrusted users

Joint task scheduling and multi-UAV deployment for aerial computing in emergency communication networks
Zhang, Tiankui; Chen, Chaobin; Xu, Yu; Loo, Jonathan; Xu, Wenjun
Sci China Inf Sci, 2023, 66(9): 192303
Keywords: emergency communication; mobile edge computing; swap matching algorithm; unmanned aerial vehicle

Performance analysis of active RIS-aided multi-pair full-duplex communications with spatial correlation and imperfect CSI
Peng, Zhangjie; Liu, Xueya; Liu, Xue; Pan, Cunhua; Chen, Xianzhe; Ren, Hong
Sci China Inf Sci, 2023, 66(9): 192304
Keywords: RIS; active RIS; FD communication; spatial correlation; imperfect CSI

Demonstration of DSM-OFDM-1024QAM transmission over 400 m at 335 GHz
Wang, Kaihui; Yu, Jianjun; Li, Weiping; Ding, Junjie; Wang, Feng; Wang, Chen; Zhou, Wen; Zhang, Jiao; Zhu, Min; Xie, Tangyao; Yu, Jianguo; Zhao, Li; Zhao, Feng
Sci China Inf Sci, 2023, 66(8): 189302
Keywords: Terahertz communication; Delta-Sigma-Modulation; OFDM; THz-over-fiber; high-order modulation

Blockchain-based vehicular edge computing networks: the communication perspective
He, Lin; Li, Fuchang; Xu, Haikun; Xia, Wenbo; Zhang, Xuefei; Tao, Xiaofeng
Sci China Inf Sci, 2023, 66(7): 172301
Keywords: block propagation; blockchain; consensus; VEC network

Knowledge-enhanced semantic communication system with OFDM transmissions
Xu, Xiaodong; Xiong, Huachao; Wang, Yining; Che, Yue; Han, Shujun; Wang, Bizhu; Zhang, Ping
Sci China Inf Sci, 2023, 66(7): 172302
Keywords: semantic communication; knowledge graph; OFDM; transformer; deep learning

Mining KPI correlations for non-parametric anomaly diagnosis in wireless networks
Sui, Tengfei; Tao, Xiaofeng; Wu, Huici; Zhang, Xuefei; Xu, Jin; Nan, Guoshun
Sci China Inf Sci, 2023, 66(6): 162301
Keywords: random matrix theory; spectral distribution; anomaly diagnosis; data analysis; wireless networks

MIMO performance enhancement of MIMO arrays using PCS-based near-field optimization technique
Wang, Yipeng; Chen, Xiaoming; Pei, Huiling; Sha, Wei E. I.; Huang, Yi; Kishk, Ahmed A.
Sci China Inf Sci, 2023, 66(6): 162302

Performance analysis of full-duplex densely distributed MIMO with wireless backhaul
Wan, Ziqian; Pan, Qijun; Li, Jiamin; Wang, Dongming; Zhu, Pengcheng
Sci China Inf Sci, 2023, 66(6): 162303
Keywords: full-duplex; wireless backhaul; performance analysis; beamforming training; interference cancelation

Power-time resource allocation for downlink SWIPT-assisted cooperative NOMA systems
Liu, Chengpeng; Zhang, Lin; Chen, Zhi; Li, Shaoqian
Sci China Inf Sci, 2023, 66(5): 152303
Keywords: NOMA; SWIPT; relaying; non-linear; transmit energy

Keywords: antenna correlation; array antenna; multiple-input multiple-output (MIMO) capacity
Robust online energy efficiency optimization for distributed multi-cell massive MIMO networks
You, Li; Huang, Yufei; Zhong, Wen; Wang, Wenjin; Gao, Xiqi
Sci China Inf Sci, 2023, 66(3): 132302
Keywords: energy efficiency; statistical CSI; multi-cell MIMO; massive MIMO; online gradient ascent;

distributed processing; robust transmission

Joint information transmission design for intelligent reflecting surface aided system with discrete phase shifts

Tao, Qin; Zhang, Shuowen; Zhong, Caijun; Zhang, Yushu

Sci China Inf Sci, 2023, 66(3): 132303

Keywords: IRS; information transmission; constellation design

Photonics-based high-speed long-distance fiber-wireless-integration communication at the W-band

Li, Weiping; Yu, Jianjun; Wang, Yanyi; Wang, Feng; Zhu, Bowen; Zhou, Wen; Zhao, Feng; Yu, Jianguo

Sci China Inf Sci, 2023, 66(2): 127301

Keywords: beyond 5G; mm-wave communication; W band; photonics-based; long-distance communication

Ultra-wideband fiber-THz-fiber seamless integration communication system toward 6G: architecture, key techniques, and testbed implementation

Zhu, Min; Zhang, Jiao; Hua, Bingchang; Lei, Mingzheng; Cai, Yuancheng; Tian, Liang; Wang, Dongming; Xu, Wei; Zhang, Chuan; Huang, Yongming; Yu, Jianjun; You, Xiaohu

Sci China Inf Sci, 2023, 66(1): 113301

Keywords: 6G; THz wireless communication; optical fiber communication; seamlessly converged architecture; real-time communication

✧ 光通信

[综述]**A review of machine learning-based failure management in optical networks**

Wang, Danshi; Zhang, Chunyu; Chen, Wenbin; Yang, Hui; Zhang, Min; Lau, Alan Pak Tao

Sci China Inf Sci, 2022, 65(11): 211302

Keywords: machine learning; artificial intelligence; failure management; optical network

Integrated optical frequency transfer and optical physical layer key distribution with enhanced link reciprocity detection

Xie, Kunfeng; Hu, Liang; Chen, Jianping; Wu, Guiling

Sci China Inf Sci, 2024, 67(7): 179303

Keywords: optical frequency transfer; optical physical layer secure key distribution; link reciprocity detection; optical communication; optical metrology

Low-resolution Kramers-Kronig detection system with error-feedback noise shaping

Dong, Xiangyong; Yu, Zhenming; Huang, Hongyu; Sun, Kaixuan; Xu, Kun

Sci China Inf Sci, 2024, 67(5): 152304

Keywords: optical fiber communications; Kramers-Kronig receiver; error-feedback noise shaping; quantization noise; carrier-to-signal power ratio

Linear shallow neural network to accelerate transmitter dispersion eye closure quaternary (TDECQ) assessment

Xiang, Junjiang; Chen, Zejun; Cheng, Yijun; Yang, Hailin; Huo, Xuancheng; Xiang, Meng; Zhou, Gai; Qin, Yuwen; Fu, Songnian

Sci China Inf Sci, 2024, 67(4): 149301

Keywords: transmitter dispersion eye closure quaternary; neural network; nonlinear activation function; PAM-4; data-center interconnection

Prediction of fiber Rayleigh scattering responses based on deep learning

Liang, Yongxin; Sun, Jianhui; Zhang, Jialei; Wang, Yuyao; Wan, Anchi; Zhang, Shibo; Ye, Zhenyu; Lin, Shengtao; Wang, Zinan

Sci China Inf Sci, 2023, 66(12): 222301

Keywords: distributed acoustic sensing; Rayleigh scattering; deep learning; bidirectional gated recurrent unit; intelligent demodulation

Over 100 Gb/s mm-wave delivery with 4600 m wireless distance based on dual polarization multiplexing

Li, Weiping; Yu, Jianjun; Ji, Xiaoxue; Liu, Jiaxuan; Wang, Feng; Zhu, Bowen; Zhou, Wen; Zhao, Feng; Yu, Jianguo

Sci China Inf Sci, 2023, 66(12): 224301

Keywords: Radio over Fiber; Polarization division multiplexing; photonics-aided; millimeter wave communication; high spectral efficiency

20736-node weighted max-cut problem solving by quadrature photonic spatial Ising machine

Ye, Xin; Zhang, Wenjia; Wang, Shaomeng; Yang, Xiaoxuan; He, Zuyuan

Sci China Inf Sci, 2023, 66(12): 229301

Keywords: Max-Cut problem; Ising machine; Optical compute; Spatial light modulator; Simulated annealing algorithm

Optical-terahertz-optical seamless integration system for dual-λ 400 GbE real-time transmission at 290 GHz and 340 GHz

Zhang, Jiao; Lei, Mingzheng; Zhu, Min; Hua, Bingchang; Cai, Yuancheng; Zou, Yucong; Tian, Liang; Wang, Yunwu; Xiao, Jinbiao; Huang, Yongming; Yu, Jianjun; You, Xiaohu

Sci China Inf Sci, 2023, 66(11): 214301

Keywords: 6G; THz wireless communication; Fiber-optic communication; seamless integration; digital coherent optics

Randomly coupled trench-assisted multicore fibers with different arrangements for high tolerance of manufacturing errors

Jiang, Yongneng; Tu, Jiajing; Gao, Shecheng; Liu, Weiping; Li, Zhaohui

Sci China Inf Sci, 2023, 66(11): 212302

Keywords: manufacturing errors; randomly coupled multicore fibers; trench-assisted core; single-layer arrangement; double-layer arrangement

Design of duel-core connected mesh topology and fine-grained fault-tolerant mechanism for 3D optical network-on-chip

Guo, Pengxing; He, Xiangyu; Yang, Yufei; Liu, Kun; Yu, Sijing; Hou, Weigang; Guo, Lei

Sci China Inf Sci, 2023, 66(11): 212303

Keywords: 3D ONoC; 3D DCMesh topology; microring resonator faults; fine-grained; fault-tolerant routing

Low power consumption reduced state and transition MLSE in optical interconnects

Ni, Weihao; Li, Fan; Wang, Wei; Luo, Zhibin; Yi, Xingwen; Cai, Yi; Li, Zhaohui

Sci China Inf Sci, 2023, 66(10): 209303

Keywords: Optical Interconnects; Bandwidth Limitation; Inter-Symbol Interference; Maximum Likelihood Sequence Estimation; Low Power Consumption

Constellation shaping optimization for nonlinearity mitigation in CAP UVLC system

Jia, Junlian; Zhang, Junwen; Chi, Nan

Sci China Inf Sci, 2023, 66(9): 192305

Keywords: underwater visible light communication; nonlinearity compensation; constellation optimization

Photonics-assisted THz wireless transmission with air interface user rate of 1-Tbps at 330–500 GHz band

Zhu, Min; Zhang, Jiao; Liu, Xiang; Hua, Bingchang; Cai, Yuancheng; Ding, Junjie; Lei, Mingzheng; Zou, Yucong; Tian, Liang; Wang, Yunwu; Tong, Weidong; Xiao, Jinbiao; Huang, Yongming; Yu, Jianjun; You, Xiaohu

Sci China Inf Sci, 2023, 66(9): 199302

Keywords: 6G; THz wireless communication; photonics-assisted; multidimensional modulation techniques; Tbps-level THz communication

Clipping discrete multi-tone for peak-power-constraint IM/DD optical systems

Zhou, Ji; Li, Liangchuan; He, Jiale; Lu, Xiaofeng; Bo, Yu; Wang, Guanyu; Huang, Yuanda; Liu, Gengchen; Lu, Yanzhao; Gao, Shecheng; Feng, Yuanhua; Zhao, Shancheng; Liu, Weiping; Yu, Changyuan; Li, Zhaohui

Sci China Inf Sci, 2023, 66(5): 152302

Keywords: discrete multi-tone; peak-to-average power ratio; peak-power constraint; clipping-noise cancellation; intensity-modulation optical systems; direct-detection optical systems

✧ 卫星通信

[综述] Applications and prospects of artificial intelligence in covert satellite communication: a review

Lu, Kun; Liu, Heng; Zeng, Liang; Wang, Jiayu; Zhang, Zhongshan; An, Jianping

Sci China Inf Sci, 2023, 66(2): 121301

Keywords: satellite communication; covert communication; secure communication; low probability of detection; artificial intelligence; machine learning

Data delivery delay and cross-layer packet size analysis for reliable transmission of Licklider transmission protocol in space networks

Yang, Guannan; Wang, Ruhai; Zhao, Kanglian; Li, Wenfeng; Yan, Dong

Sci China Inf Sci, 2024, 67(9): 192303

Keywords: Licklider transmission protocol; DTN; bundle protocol; cross-layer packets size; space communication

Semantic-aware coordinated transmission in cohesive clustered satellites: utility of information perspective

Xu, Liang; Jiao, Jian; Jiang, Shiyao; Wang, Ye; Zhang, Qinyu

Sci China Inf Sci, 2024, 67(9): 199301

Keywords: cohesive clustered satellites; utility of information; semantic-aware coordinated transmission; multi-agent deep learning; satellite communications

Two-layer Lagrange-based relay network topology and trajectory design for solar system explorations

Cao, Jun; Jiao, Jian; Liu, Hao; Lu, Rongxing; Zhang, Qinyu

Sci China Inf Sci, 2024, 67(6): 162301

Keywords: deep-space communication; Lagrangian points; backbone relay network; transfer trajectory; relay selection

Tiered clustering-based management architecture in mega-satellite networks

Hao, Qi; Zhou, Di; Sheng, Min; Shi, Yan; Li, Jiandong

Sci China Inf Sci, 2024, 67(5): 152301

Keywords: mega-satellite networks; hierarchical architecture; average hop; tiered structure; clustering

Joint channel estimation and beam selection NOMA system for satellite-based Internet of Things

Chen, Zeqiong; Jiao, Jian; Wu, Shaohua; Zhang, Qinyu

Sci China Inf Sci, 2022, 65(10): 202301

Keywords: satellite-based Internet of Things; non-orthogonal multiple access; channel estimation; system throughput; fairness

CS-LTP-Spinal: a cross-layer optimized rate-adaptive image transmission system for deep-space exploration

Wu, Shaohua; Li, Dongqing; Jiao, Jian; Zhang, Qinyu

Sci China Inf Sci, 2022, 65(1): 112303

Keywords: deep-space image transmission; cs-ltp-spinal; rate-adaptive; cross-layer optimization; semi-physical simulation

✧ 通信信号处理

[Hot Paper |综述]

Multichannel adaptive signal detection: basic theory and literature review

Liu, Weijian; Liu, Jun; Hao, Chengpeng; Gao, Yongchan; Wang, Yong-Liang

Sci China Inf Sci, 2022, 65(2): 121301

Keywords: constant false alarm rate; multichannel signal; signal mismatch; statistical distribution; subspace signal

Doppler-resilient waveform design in integrated MIMO radar-communication systems

Zhou, Zhengchun; Liu, Bing; Shen, Bingsheng; Adhikary, Avik Ranjan; Fan, Pingzhi

Sci China Inf Sci, 2024, 67(1): 112301

Keywords: ambiguity function; correlation; channel estimation; integrated radar and communication systems; Rad-Com; MIMO radar; zero correlation zone sequence set; ZCZ; zero odd-correlation zone sequence set; ZOCZ

Off-grid DOA estimation via a deep learning framework

Huang, Yan; Zhang, Yanjun; Tao, Jun; Wen, Cai; Liao, Guisheng; Hong, Wei

Sci China Inf Sci, 2023, 66(12): 222305

Keywords: direction-of-arrival estimation; DOA estimation; deep learning; off-grid; array signal processing

Robust DOA estimation and tracking for integrated sensing and communication massive MIMO OFDM systems

Xu, Kui; Xia, Xiaochen; Li, Chunguo; Xie, Wei; Liu, Jie; Zhu, Rangang; He, Huasen

Sci China Inf Sci, 2023, 66(10): 202302

Keywords: integrated sensing and communication; massive multiple input multiple output; MIMO; orthogonal frequency-division multiplexing; OFDM; direction-of-arrival estimation and tracking; frame structure and pilot sequence

Near-field wideband channel estimation for extremely large-scale MIMO

Cui, Mingyao; Dai, Linglong

Sci China Inf Sci, 2023, 66(7): 172303

Keywords: XL-MIMO; wideband; near-field; beam split; channel estimation

Self-attention reinforcement learning for multi-beam combining in mmWave 3D-MIMO systems

Huang, Yingzhi; Zhang, Zhaoyang; Che, Jingze; Yang, Zhaohui; Yang, Qianqian; Wong, Kai-Kit

Sci China Inf Sci, 2023, 66(6): 162304

Keywords: reinforcement learning; deep deterministic policy gradient; self-attention; precoding; combining; millimeter-wave; mmWave; multi-input multi-output; MIMO

Asynchronous multilevel bit-interleaved polar-coded modulation

Hu, Yaoyue; Pan, Zhiwen; Guan, Yongliang

Sci China Inf Sci, 2023, 66(3): 132304
Keywords: polar codes; bit-interleaved coded modulation; multilevel coded modulation; spatial coupling; multi-stage decoding

✧ 信息论与编码

[综述]Quantum-safe cryptography: crossroads of coding theory and cryptography
Wang, Jiabo; Liu, Ling; Lyu, Shanxiang; Wang, Zheng; Zheng, Mengfan; Lin, Fuchun; Chen, Zhao; Yin, Liuguo; Wu, Xiaofu; Ling, Cong
Sci China Inf Sci, 2022, 65(1): 111301
Keywords: post-quantum cryptography; lattice-based cryptography; code-based cryptogarphy; information-theoretic security; lattice reduction; lattice codes; linear codes

Design of double protograph LDPC codes based JSCC systems via the ACE-PEG algorithm
Lv, Yijie; He, Jiguang; Hong, Shaohua
Sci China Inf Sci, 2024, 67(7): 179305
Keywords: double protograph low-density parity-check codes; joint source-channel coding; approximated cycle extrinsic

Global optimization of double protograph LDPC codes for JSCC scheme
Chen, Qiwang; Chen, Chen; He, Yu-Cheng; Xu, Zhiping
Sci China Inf Sci, 2024, 67(6): 169301
Keywords: JSCC; DP-LDPC codes; linking matrix; global optimization; protograph LDPC message degree; higher-degree variable nodes; parallel differential evolutionary algorithm

Constructions of optimal binary locally repairable codes via intersection subspaces
Zhang, Wenqin; Tang, Deng; Ying, Chenhao; Luo, Yuan
Sci China Inf Sci, 2024, 67(6): 162306
Keywords: locally repairable codes; disjoint local repair groups; distributed storage systems; intersection subspaces; direct sum

A low-floor bit-mapping scheme for LDPC coded BICM for 5G and beyond systems
Zhu, Mingyang; Jiang, Ming; Zhao, Chunming; Hu, Lijie; Xu, Xiaodong
Sci China Inf Sci, 2023, 66(10): 202301
Keywords: bit-interleaved coded modulation; low-density parity-check codes; error floors; bit mapping; high-order modulation

Joint-decoding-complexity-oriented collaborative design for joint source-channel coding system based on double protograph-LDPC codes
Xu, Zhiping; Song, Dan; Zheng, Jiachun; Wang, Lin
Sci China Inf Sci, 2023, 66(8): 189301
Keywords: joint decoding complexity; JPEXIT; channel code; protograph LDPC; collabrative design; joint source-channel coding

A fast parallel SC-Fano decoding algorithm for PAC codes
Wu, Yunzhi; Li, Li; Fan, Pingzhi
Sci China Inf Sci, 2023, 66(5): 152301
Keywords: PAC codes; parallel decoding; Fano decoding; complexity

Reduced-search guessing random additive noise decoding of polar codes
Wang, Kefan; Wei, Yuejun; Chen, Zhenyuan; Yin, Huarui; Li, Liping; Zhang, Wenyi
Sci China Inf Sci, 2023, 66(2): 129301
Keywords: polar codes; GRAND; ORBGRAND; LGRAND; adaptive LGRAND

✧ 网络安全

[Highly Cited 202403] Efficient privacy-preserving user authentication scheme with forward secrecy for industry 4.0
Wang, Chenyu; Wang, Ding; Xu, Guoai; He, Debiao
Sci China Inf Sci, 2022, 65(1): 112301
Keywords: industry 4.0; wireless sensor networks; password authentication; forward secrecy; offline dictionary attack

[综述]A survey on cryptographic techniques for protecting big data security: present and forthcoming
Lu, Siqi; Zheng, Jianhua; Cao, Zhenfu; Wang, Yongjuan; Gu, Chunxiang
Sci China Inf Sci, 2022, 65(10): 201301
Keywords: big data security; cryptographic techniques; ciphertext-based data sharing and computing; au- thenticated encryption; functional encryption; homomorphic encryption; secure multi-party computing

[观点]On the revolution of the information network development paradigm
Wu, Jiangxing
Sci China Inf Sci, 2022, 65(11): 213301
Keywords: information network development paradigm; separation of technical systems and supporting environment; polymorphic network; PINet

[观点]Development paradigms of cyberspace endogenous safety and security
Wu, Jiangxing
Sci China Inf Sci, 2022, 65(5): 156301
Keywords: reconfigurable architectures; energy efficiency; cryptographic accelerator; flexibility; side channel analysis

Identifying malicious traffic under concept drift based on intraclass consistency enhanced variational autoencoder
Luo X, Liu C, Gou G P, et al

Sci China Inf Sci, 2024, 67(8): 182302
Keywords: concept drift; malicious traffic identification; variational autoencoder; intrusion detection; cyberspace security

Multi-party privacy-preserving decision tree training with a privileged party
Tong Y W, Feng Q, Luo M, et al
Sci China Inf Sci, 2024, 67(8): 182303
Keywords: privacy protection; decision trees; secure multi-party computation; secret sharing; privileged party

CToMP: a cycle-task-oriented memory protection scheme for unmanned systems
Ma, Chengyan; Xi, Ning; Lu, Di; Feng, Yebo; Ma, Jianfeng
Sci China Inf Sci, 2024, 67(6): 162305
Keywords: unmanned system; memory corruption attack; memory protection; system security; randomized memory address

FUSE: a federated learning and U-shape split learning-based electricity theft detection framework
Li, Xuan; Wang, Naiyu; Zhu, Liehuang; Yuan, Shuai; Guan, Zhitao
Sci China Inf Sci, 2024, 67(4): 149302
Keywords: federated Learning; electricity theft detection; smart grid; split learning; computational overhead; privacy-preserving

Modulated symbol-based one-time pad secure transmission scheme using physical layer keys
Hu, Xiaoyan; Wan, Zheng; Huang, Kaizhi; Jin, Liang; Yan, Mengyao; Chen, Yajun; Yang, Jinmei
Sci China Inf Sci, 2024, 67(1): 112303
Keywords: physical layer security; one-time pad; wireless channel; physical layer encryption; perfect secrecy

A DHR executor selection algorithm based on historical credibility and dissimilarity clustering
Shao, Sisi; Ji, Yimu; Zhang, Weili; Liu, Shangdong; Jiang, Fei; Cao, Zhigang; Wu, Fei; Zeng, Fukang; Zuo, Jun; Zhou, Longfei
Sci China Inf Sci, 2023, 66(11): 212304
Keywords: endogenous security; mimic defense; DHR; executor selection; historical credibility

DP-GenFL: a local differentially private federated learning system through generative data
Li, Jun; Wei, Kang; Ma, Chuan; Shu, Feng
Sci China Inf Sci, 2023, 66(8): 189303
Keywords: Federated learning; Differential Privacy; Generative Adversarial Networks; Membership Inference Attack; Privacy Enhancing Technique

Few-shot RF fingerprinting recognition for secure satellite remote sensing and image processing
Lin, Di; Hu, Su; Wu, Weiwei; Wu, Gang
Sci China Inf Sci, 2023, 66(8): 189304
Keywords: Satellite remote sensing; User authentication; Radio frequency fingerprinting; Image

perturbation; Spatially transformed adversarial

Reinforcement learning of non-additive joint steganographic embedding costs with attention mechanism

Tang, Weixuan; Li, Bin; Li, Weixiang; Wang, Yuangen; Huang, Jiwu

Sci China Inf Sci, 2023, 66(3): 132305

Keywords: information hiding; non-additive steganography; steganalysis; cost learning; image processing

A nonprofiled side-channel analysis based on variational lower bound related to mutual information

Zhang, Chi; Lu, Xiangjun; Cao, Pei; Gu, Dawu; Guo, Zheng; Xu, Sen

Sci China Inf Sci, 2023, 66(1): 112302

Keywords: side-channel analysis; nonprofiled method; variational lower bound; mutual information; neural networks

✧ 电磁场与微波技术

[Highly Cited 202403] Diverse terahertz wavefront manipulations empowered by the spatially interleaved metasurfaces

Li, Jitao; Yue, Zhen; Li, Jie; Zheng, Chenglong; Wang, Silei; Li, Mengyao; Zhang, Yating; Zhang, Yan; Yao, Jianquan

Sci China Inf Sci, 2023, 66(3): 132301

Keywords: terahertz; wavefront manipulations; metasurfaces; spatial interleaving; onformation optics

Robust textile-based spoof plasmonic frequency scanning antenna for on-body IoT applications

Chen Z-M, Zhan J-L, Chen H, et al

Sci China Inf Sci, 2024, 67(8): 182304

Keywords: frequency beam scanning antenna; FBSA; Internet of Things; IoT; on-body communication; spoof surface plasmon polaritons; SSPP; textile-based antenna

A dual-band wireless communication of spoof plasmonic meta-waveguide

Gao, Xinxin; Wu, Geng-Bo; Gu, Ze; Ma, Qian; Cui, Wenyi; Cui, Tiejun; Chan, Chihou

Sci China Inf Sci, 2024, 67(7): 179304

Keywords: reprogrammable plasmonic metamaterial; code spoof plasmonic; spatial wave; surface wave; dual-band wireless communications

Blindness-free beam scanning antenna with array of array architecture: principle, design, and experiment

Sun, Jianxu; Cheng, Yujian

Sci China Inf Sci, 2024, 67(3): 132301

Keywords: 6G communication systems; phased array; AoA; aperiodic subarray; wideband; wide-scanning; surface-wave; scanning blindness; grating lobe

Transformation of a metasurface on the substrate interface into the same metasurface in a homogenized substrate based on two kinds of modified Babinet's principles

Liu, Xiaobo; Lu, Rui; Zhang, Anxue; Cheng, Qiang; Chen, Xiaoming

Sci China Inf Sci, 2023, 66(12): 222306

Keywords: dielectric half-space; homogenized dielectric space; metasurface; relative permittivity; surface impedance matrix; substrate interface

Accurate and efficient planar near-field measurements: a new perspective from electromagnetic information theory

Zheng, Junhao; Chen, Xiaoming; Wang, Zhengpeng; Li, Jianxing; Chen, Juan; Sha, Wei E. I.; Guo, Lixin

Sci China Inf Sci, 2023, 66(10): 209301

Keywords: near-field measurement; antenna measurements; interpolation; pattern reconstruction; spatial sampling

Low-loss wide-bandwidth planar transmission line with a laminated conductor

Ning, Ken; Li, Xiao-Chun; Shao, Yan; Mao, Junfa

Sci China Inf Sci, 2023, 66(5): 152304

Keywords: coplanar waveguide; laminated conductor; conductor loss; skin effect; silicon-based technology; wide-bandwidth

A K-/Ka-band planar shared-aperture beam-scanning array with a high-isolation for the emerging mm-Wave shared-aperture terminals

Guo, Zi-Jun; Hao, Zhang-Cheng; Miao, Zhuo-Wei; Yin, Hao-Yu; Ding, Chen-Yu; Gang, Hao-Jie

Sci China Inf Sci, 2023, 66(5): 152305

Keywords: shared-aperture; high isolation; beam-scanning; substrate-integrated coaxial line; substrate-integrated double line

✧ 雷达技术与遥感图像处理

遥感与人工智能的交叉创新专题

Special Topic: Artificial Intelligence Innovation in Remote Sensing

Gest Editors: Jun LI, Xian SUN, Hanwen YU, Feng XU, Jon Atli BENEDIKTSSON

2023, Vol.66, No.4 【AI 与遥感交叉专题】

[综述]**From single- to multi-modal remote sensing imagery interpretation: a survey and taxonomy**

Sun, Xian; Tian, Yu; Lu, Wanxuan; Wang, Peijin; Niu, Ruigang; Yu, Hongfeng; Fu, Kun

Sci China Inf Sci, 2023, 66(4): 140301

Keywords: multimodal; remote sensing; image interpretation; feature fusion; co-learning

[综述]**A survey on hyperspectral image restoration: from the view of low-rank tensor approximation**

Liu, Na; Li, Wei; Wang, Yinjian; Tao, Ran; Du, Qian; Chanussot, Jocelyn

Sci China Inf Sci, 2023, 66(4): 140302

Keywords: hyperspectral image; image restoration; low-rank tensor approximation; multisource fusion;

remote sensing

Interference mitigation and target detection for automotive FMCW radar with range-Doppler sparse regularization
Huang Y, Wang Y X, Zhou X, et al
Sci China Inf Sci, 2024, 67(9): 199303
Keywords: automotive radar; mutual interference mitigation; target detection; range-Doppler regularization; FMCW radar

Learning the external and internal priors for multispectral and hyperspectral image fusion
Li, Shutao; Dian, Renwei; Liu, Haibo
Sci China Inf Sci, 2023, 66(4): 140303
Keywords: multispectral and hyperspectral image fusion; external and internal prior learning; high-resolution hyperspectral imaging

Wide-beam SAR autofocus based on blind resampling
Chen, Jianlai; Yu, Hanwen
Sci China Inf Sci, 2023, 66(4): 140304
Keywords: synthetic aperture radar; SAR; wide-beam; autofocus; nonlinear chirp scaling; NCS; resampling

MFVNet: a deep adaptive fusion network with multiple field-of-views for remote sensing image semantic segmentation
Li, Yansheng; Chen, Wei; Huang, Xin; Gao, Zhi; Li, Siwei; He, Tao; Zhang, Yongjun
Sci China Inf Sci, 2023, 66(4): 140305
Keywords: semantic segmentation; remote sensing image; field-of-view; adaptive fusion; convolutional neural network

Detecting building changes with off-nadir aerial images
Pang, Chao; Wu, Jiang; Ding, Jian; Song, Can; Xia, Gui-Song
Sci China Inf Sci, 2023, 66(4): 140306
Keywords: change detection; high-resolution imagery; multi-task learning; off-nadir imagery; remote sensing dataset

AIR-PV: a benchmark dataset for photovoltaic panel extraction in optical remote sensing imagery
Yan, Zhiyuan; Wang, Peijin; Xu, Feng; Sun, Xian; Diao, Wenhui
Sci China Inf Sci, 2023, 66(4): 140307
Keywords: photovoltaic panels extraction; remote sensing; benchmark dataset; deep learning; large scale

Multi-layer composite autoencoders for semi-supervised change detection in heterogeneous remote sensing images
Shi, Jiao; Wu, Tiancheng; Yu, Hanwen; Qin, A. K.; Jeon, Gwanggil; Lei, Yu
Sci China Inf Sci, 2023, 66(4): 140308
Keywords: heterogeneous images; neural networks; composite autoencoders; semi-supervised change detection; remote sensing

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Repeat-pass space-surface bistatic SAR tomography: accurate imaging and first experiment

Chen Z Y, Li Y H, Hu C, et al

Sci China Inf Sci, 2024, 67(9): 192304

Keywords: space-surface SAR; tomography; orbit error; image distortion; Lutan-1

Orthogonal waveform design with fractional programming on the ambiguity suppression of SAR systems

Deng Y K, Zhang Y W, Zhang Z M, et al

Sci China Inf Sci, 2024, 67(9): 192305

Keywords: synthetic aperture radar; SAR; waveform diversity; WD; ambiguity suppression; orthogonal waveform; fractional programming; power spectrum density; PSD

An adaptive 3D reconstruction method for asymmetric dual-angle multispectral stereo imaging system on UAV platform

Wang C, Li X, Gu Y F, et al

Sci China Inf Sci, 2024, 67(8): 182305

Keywords: multispectral images; 3D reconstruction; stereo imaging system; unmanned aerial vehicle; feature extraction

Multi-sensor multispectral reconstruction framework based on projection and reconstruction

Li, Tianshuai; Liu, Tianzhu; Li, Xian; Gu, Yanfeng; Wang, Yukun; Chen, Yushi

Sci China Inf Sci, 2024, 67(3): 132303

Keywords: spectral reconstruction; spectral superresolution; hyperspectral image; multispectral image; neural networks; multi-sensor

Analysis of phase preservation and interferometric offset test in sparse SAR imaging

Xu, Zhongqiu; Zhang, Bingchen; Li, Guangzuo; Zhan, Xueli; Bao, Yanfei; Wu, Yirong

Sci China Inf Sci, 2024, 67(2): 122303

Keywords: sparse SAR imaging; phase preservation; interferometric offset test; general ADMM; azimuth-range decouple

Multiscale observation in wide-spatial radar surveillance based on coherent FDA design

Yu, Lei; He, Feng; Su, Yi

Sci China Inf Sci, 2024, 67(2): 122304

Keywords: multi-scale observation; wide-spatial surveillance; frequency diverse array; FDA; beampattern synthesis; frequency diversity gain; computational array

High-resolution, multi-frequency and full-polarization radar database of small and group targets in clutter environment

Hu, Cheng; Yan, Yujia; Wang, Rui; Jiang, Qi; Cai, Jiong; Li, Weidong

Sci China Inf Sci, 2023, 66(12): 227301

Keywords: Radar database; Radar clutter; Target detection; Group targets; Multi-frequency;

Full-polarization; High-resolution

A novel sparse SAR unambiguous imaging method based on mixed-norm optimization
Bi, Hui; Song, Yufan; Yin, Yanjie; Zhang, Jingjing; Hong, Wen; Wu, Yirong
Sci China Inf Sci, 2023, 66(11): 219302
Keywords: synthetic aperture radar; sparse microwave imaging; SAR imaging; sparse signal processing; radar imaging

Signal design for MIMO dual-function systems with permutation learning
Yang, Jing; Yu, Xianxiang; Sha, Minghui; Fan, Wen; Cui, Guolong
Sci China Inf Sci, 2023, 66(10): 202303
Keywords: dual function radar and communication system; MIMO; MIMO radar beampattern; alternating direction method of multipliers; ADMM; permutation learning; mix-boolean optimization problem; alternating direction penalty method; ADPM

A multi-frame sparse self-learning PWC-Net for motion estimation in satellite video scenes
Wang, Tengfei; Gu, Yanfeng; Li, Shengyang
Sci China Inf Sci, 2023, 66(9): 192301
Keywords: satellite video scenes; motion estimation; small blurry targets

A compact MIMO automotive radar using phase-aligned daisy-chain cascading topology and elevation compensation for 2D angle estimation
Zhou, Rui; Chen, Jixin; Huang, Yan; Xu, Gang; Hou, Debin; Zhang, Bangjie; Li, Zekun; Xiang, Yu; Hong, Wei
Sci China Inf Sci, 2023, 66(6): 162305
Keywords: frequency-modulated continuous-wave radar prototype; FMCW; multiple-input-multiple-output; MIMO; phase-alignment daisy-chained cascading topology; 2D antenna design; elevation compensation

Persymmetric adaptive detection of range-spread targets in subspace interference plus Gaussian clutter
Jian, Tao; He, Jia; Liu, Yu; He, You; Xu, Congan; Xie, Zikeng
Sci China Inf Sci, 2023, 66(5): 152306
Keywords: adaptive detection; persymmetry; structured interference; constant false alarm rate; Rao test

Geometric constraints based 3D reconstruction method of tomographic SAR for buildings
Han, Dong; Jiao, Zekun; Zhou, Liangjiang; Ding, Chibiao; Wu, Yirong
Sci China Inf Sci, 2023, 66(1): 112301
Keywords: tomographic SAR; 3D reconstruction of buildings; geometric constraints; back projection; compressed sensing