CODE

TITLE

VTIMP01	SpineParseNet: Spine Parsing for Volumetric MR Image by a Two-Stage Segmentation Framework with Semantic Image Representation	Application: Medical Image Processing, Image Segmentation Description: A memory-efficient two-stage multi-class segmentation framework named SpineParseNet is proposed to achieve spine parsing for the volumetric MR image
VTIMP02	Reconstructing Undersampled Photoacoustic Microscopy Images Using Deep Learning	Application: Medical Image Processing, Machine Learning Description: A deep learning approach to improve undersampled PAM images, using as few as 2% of the original pixels. Our deep learning technique offers an improved ability to approximate the nonlinear mapping of the undersampled images to their fully-sampled counterparts
VTIMP03	Semi-Reference Sonar Image Quality Assessment Based on Task and Visual Perception	Application: Image Quality Analysis and Assessment Description: A series of perception-oriented SIQA methods to achieve better estimation of utility quality for high-resolution sonar images, an SIQA method should be not only perception-oriented but also task- oriented.
VTIMP04	CNN-Based Ultrasound Image Reconstruction for Ultrafast DisplacementTracking	Application: Medical Image Processing, Neural Networks Description: An approach for estimating 2-D inter-frame displacements at maximum frame rates, by combining our CNN-based image reconstruction method with a state-of-the-art 2-D speckle tracking algorithm.
VTIMP05	A Novel Fast Single Image Dehazing Algorithm Based on Artificial Multiexposure Image Fusion	Application: Image Enhancement Description: A single image dehazing framework based on artificial multiexposure image fusion, which first combines the global and local details of the gamma-corrected images and then balances the image luminance and color saturation to obtain a corresponding haze-free image.
VTIMP06	Interpretable Detail-Fidelity Attention Network for Single Image Super- Resolution	Application: Image Enhancement, Neural Networks Description: A novel multi-scale Hessian filtering method (MSHF) to extract multi-scale textures and details with the maximum eigenvalue of scaled Hessian features. Unlike conventional CNN features in most existing SR methods, the proposed MSHF is interpretable and specific to improve detail fidelity
VTIMP07	Contrast Enhancement of Multiple Tissues in Mr Brain Images with Reversibility	Application: Image Enhancement, Neural Networks Description: A hierarchical CE scheme to improve the performance of pre- screening multiple tissues in the MR images. a convolutional neural network (CNN) is adopted in our scheme to perform tissue segmentation automatically to enhance multiple tissues individually
VTIMP08	A Supervised Segmentation Network for Hyperspectral Image Classification	Application: Image Segmentation, Neural Networks Description: An end-to-end fully convolutional segmentation network (FCSN) is proposed for HSI classification. Different from coarse labels of HSI cubes in CNN-based methods, a fine label style is proposed to label each hyperspectral pixel of HIS cubes.
VTIMP09	A New Image Encryption Algorithm for Grey and Colour Medical Images	Application: Medical Image Processing, Image Security Description: A new algorithm for encrypting medical images that include four parts: image splitting, image scrambling, key generation, and diffusion



APPLICATION / DESCRIPTION

01

Application: Image Enhancement

Wavelength and filters are identified

Description: Proposed methodology is light speckle auto correlation and

marked membrane to determine the residue cover over the soil surface the

black and white, colour imaging methodologies are implemented.

Determination Of Soil Moisture

Content Using Image Processing -A

Survey

VTIMP18

CODE	TITLE	APPLICATION / DESCRIPTION
VTIMP10	Quantitative Evaluation of An Automated Cone-Based Breast Ultrasound Scanner For MRI–3d Us Image Fusion	Application: Medical Image Processing, Image Analysis Description: We describe and evaluate a novel Automated Cone-based Breast Ultrasound System (ACBUS) that acquires volumetric ultrasound data of the breast in a prone position with only minor deformation, thus facilitating MRI-3D US fusion
VTIMP11	SAR Image De-Noising Via Grouping-Based PCA and Guided Filter	Application: Image Enhancement Description: A semi-non-local principal component analysis (PCA)-based de-noising method for SAR images. The PCA is a classical de-correlation technology in statistical signal processing which is widely used in pattern recognition and dimensionality reduction and other fields
VTIMP12	Distributed Learning and Inference with Compressed Images	Application: Image Enhancement, Segmentation Description: We study the effect of compression on downstream analysis tasks (focusing on semantic segmentation) under different configurations, which in turn can be related to real scenarios
VTIMP13	An Image Reconstruction Method of Capacitively Coupled Electrical Impedance Tomography (CCEIT) Based on DBSCAN and Image Fusion	Application: Image Enhancement Description: A new image reconstruction method of CCEIT by introducing the LBP algorithm, density-based spatial clustering of applications with noise (DBSCAN) algorithm, and image fusion technique
VTIMP14	Coarse-To-Fine Lung Nodule Segmentation in CT Images with Image Enhancement and Dual-Branch Network	Application: Medical Image Processing, Image Enhancement Description: A novel coarse-to-fine approach by integrating image enhancement and deep learning approaches. Given a CT image, image enhancement is first used to improve the discrimination of nodules and roughly locate the lesion area. Then a dual-branch segmentation network to label the precise boundaries of nodules, and combined adjacent slices of CT images in the network.
VTIMP15	Cine Cardiac MRI Motion Artifact Reduction Using a Recurrent Neural Network	Application: Medical Image Processing, Neural Networks Description: A novel recurrent generative adversarial network model for cardiac MRI motion artifact reduction. This model utilizes bi-directional ConvLSTM and multiscale convolutions to improve the performance of the proposed network
VTIMP16	Hierarchical Image Segmentation Based on Non-symmetry And Anti- Packing Pattern Representation Model	Application: Image Segmentation Description: An NAMLab-based color image representation approach that is more in line with the human visual perception characteristics, and can fast and effectively merge the image pixels to the NAMLab blocks, i.e., the initial regions
VTIMP17	Boosting Single Image Super- Resolution Learnt from Implicit Multi-Image Prior	Application: Image Enhancement Description: A flexible learning framework to boost the performance of the representative SISR networks without changing the network architecture and the model capacity



02



CODE	TITLE	APPLICATION / DESCRIPTION	
VTIMP19	High-Resolution Remote Sensing Image Captioning Based on Structured Attention	Application: Image Segmentation, Image Enhancement Description: A novel image captioning method for high-resolution remote sensing images based on the structured attention mechanism. The proposed method deals with image captioning and pixel-level segmentation under a unified framework	
VTIMP20	DenseNet Model with RAdam Optimization Algorithm for Cancer Image Classification	Application: Medical Image Processing, Artificial Intelligence Description: A novel application innovation to identify the cancer by combining DenseNet121, RAdam optimization, and focal loss function. RAdam optimization algorithm is effective and robust for model training. Focal Loss can effectively solve the problem of serious imbalance in the ratio of positive and negative samples	DCESSING
VTIMP21	Technical Analysis of Intelligent Image Processing of Tea	Application: Image Processing, Image Analysis Description: Tea has a rich and is one of the three most recognized global drinks so far. Digital image technology is to use some kind of sensor to transform the collected image data into digital information, and then use computer to process the image material information	IMAGE PRO
VTIMP22	Unsupervised Domain Adaptation Network with Category-Centric Prototype Aligner for Biomedical Image Segmentation	Application: Medical Image Processing, Image Segmentation Description: A novel framework for UDA, which is more effective and robust in handling complex cross-modality biomedical image segmentation. It efficiently balances multi-level features discriminator without contradiction that is crucial for UDA	- DIGITAL
VTIMP23	Transfer Learning for Automatic Brain Tumour Classification Using MRI Images	Application: Medical Image Processing, Neural Networks Description: Transfer learning is employed for building a deep learning model for classifying MRI images with brain tumors. The proposed model is implemented on three pre-trained deep CNN models: ResNet, Xception and MobilNet-V2, to classify MRI images into Tumor or Non-tumor'	IEEE 2021
VTIMP24	Cubemap-Based Perception-Driven Blind Quality Assessment For 360- Degree Images	Application: Image Analysis and Assessment Description: A cubemap-based perception-driven blind quality assessment (CPBQA) framework is proposed for 360-degree images, from the perspective of the perception modeling	
VTCM01	A New Efficient Two-Sided Comple- mentary Code Based Channel Estimation Technique "TSCCCE" for MIMO-OFDM Systems, Under the Effects of Partial-Band Jamming and Doppler Spread	Application: MIMO OFDM, Channel Estimation Description: It introduces the two-sided CE (TSCE), where separate subcarrier locations are used to carry the two pilot CCs. Equalization errors can occur in dangerous situations, in case a system is interfered with or jammed. This leads to negative impacts on the accuracy of channel estimation	AUNICATION
VTCM02	Maximum Likelihood Localization Method With MIMO-OFDM Transmission	Application: MIMO OFDM Description: To investigate maximum likelihood Location estimation (LE) using MIMO-OFDM signal transmission from access points (APs) to user equipment (UEs).	DIGITAL COMN
VTCM03	Beamspace Channel Estimation with Beam Squint Effect for the Millimeter- Wave MIMO-OFDM Systems	Application: MIMO OFDM, Channel Estimation Description: We propose two schemes of beamspace channel estimation with beam squint effect for wideband mmWave massive MIMO systems: a CS-based algorithm and a two-stage framework	IEEE 2021 -



CODE	TITLE	APPLICATION / DESCRIPTION
VTCM04	A Novel Non-Hermitian Symmetry Orthogonal Frequency Division Multiplexing System for Visible Light Communications	Application: OFDM, Visible Light Communications Description: A novel non-Hermitian symmetry optical OFDM system based on FHT (referred to as HU-OFDM) is proposed. It removes the restriction of real constellation mapping in and adopts a more favorable complex constellation mapping mode like QAM
VTCM05	Time-and-Frequency Hybrid Multiplexing for Flexible Ambiguity Controls of DFT-coded MIMO OFDM Radar	Application: MIMO OFDM, Description: A new hybrid multiplexing method suitable for a large number of TXs in a MIMO OFDM radar system is proposed. The TX signal can be multiplexed by multiplying discrete Fourier transform (DFT) matrices of appropriate sizes in the frequency-space domain as well as in the time-space domain
VTCM06	Security Transmission in MIMO Ubiquitous Power Internet of Things Systems	Application: MIMO, Internet of Things Description: A method to enhance MIMO PLC security. Before the information message is transmitted, two or more artificial messages are added to it. To maintain the integrity of original information, these artificial messages are shifted to different frequency points so that they are isolated in frequency domain
VTCM07	A Novel Successive-Interference- Cancellation-Aware Design for Wireless Networks Using Software- Defined Networking	Application: Interference Cancellation Description: SDN's functionality-separation idea of separating the channel-contention and data-transmission processes into two subchannels for concurrent execution is applied to fully utilize a channel and allow more nodes to become winners for consequent data transmission
VTCM08	A Generalized Space-Frequency Index Modulation Scheme for Downlink MIMO Transmissions with Improved Diversity	Application: MIMO, Index Modulation Description: A frequency and space domain IM scheme that we refer to as PT-GSFIM, is designed for the downlink of MU-MIMO systems. PT- GSFIM independently encodes part of the information bits onto spatial indexes and part onto frequency indexes
VTCM09	DCD-Based Joint Sparse Channel Estimation for OFDM in Virtual Angular Domain	Application: MIMO OFDM, Channel Estimation Description: A dichotomous coordinate descent (DCD) based algorithm for joint sparse channel estimation in the virtual angular domain for the orthogonal-frequency-division-multiplexing massive MIMO
VTCM10	Maximum a Posteriori Probability (MAP) Joint Fine Frequency Offset and Channel Estimation for MIMO Systems with Channels of Arbitrary Correlation	Application: MIMO OFDM, Channel Estimation Description: The maximum a posteriori probability (MAP) estimation solution, which is particularly useful for tracking. the corresponding Bayesian CRLB (BCRLB) shows a clear relation with parameters and low complexity algorithms are provided to achieve the BCRLB in almost all SNR range
VTCM11	Cell-Free Massive MIMO-OFDM Transmission over Frequency- Selective Fading Channels	Application: MIMO OFDM, Fading Channel Description: To analyze orthogonal frequency-division multiplexing (OFDM)-based multicarrier transmission for CFmMIMO, coined cell-free massive MIMO-OFDM (CFmMIMO-OFDM), over frequency selective fading channels
VTCM12	Wideband Generalized Beamspace Modulation (wGBM) for mmWave Massive MIMO over Doubly- Selective Channels	Application: MIMO OFDM Description: GBM is generalized from the narrowband static channels to doubly-selective ones, and the designed wGBM retains the SE-enhancing merit and proves to be compatible with hybrid OFDM systems

IEEE 2021 - DIGITAL COMMUNICATION SYSTEMS



CODE	TITLE	APPLICATION / DESCRIPTION	
VTCM13	Sparse Channel Estimation via Hierarchical Hybrid Message Passing for Massive MIMO-OFDM Systems	Application: MIMO OFDM, Channel Estimation Description: An uplink massive MIMO-OFDM system is considered and a hierarchical hybrid message passing (HHMP) algorithm is proposed to estimate time-varying sparse channels in the angle-delay domain with low pilot overhead and high estimated accuracy	INICATION
VTCM14	Multipath Extraction Based UL/DL Channel Estimation for FDD Massive MIMO-OFDM Systems	Application: MIMO OFDM, Channel Estimation Description: A low computational complexity off-grid channel estimation method in wideband massive MIMO systems, where comb-type pilots are used for channel estimation and beam squint effect is considered	AL COMML
VTCM15	Millimeter Wave MIMO-OFDM With Index Modulation: A Pareto Paradigm on Spectral- Energy Efficiency Trade- Off	Application: MIMO OFDM Description: A MIMO-OFDM-IM scheme for HAD beamforming mmWave systems, and a maximum likelihood (ML) detector is employed to decode the information bits from each subblock of MIMO-OFDM-IM	21 - DIGIT
VTCM16	Channel Estimation for Millimeter Wave Massive MIMO Systems Using Separable Compressive Sensing	Application: MIMO, Channel Estimation Description: The angular spreads of mmWave channel give rise to the separable sparse structure, such that the sparsity of mmWave channel can be divided into AoA and AoD domains separately. A separable compressive sensing method is developed to estimate mmWave channel.	IEEE 20

