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本期封面图片由中国计量大
学周鹏威(180581)提供



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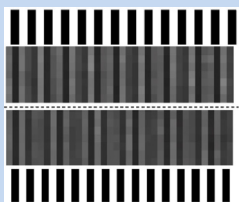
Article



Image super-resolution reconstruction based on multi-scale feature loss function 180419

Xu Liang, Fu Randi, Jin Wei, Tang Biao, Wang Shangli

In order to solve the problem of constructed image with fuzzy details and too smooth, the traditional mean square error loss function was improved, and an image super-resolution reconstruction method based on multi-scale feature loss function was proposed.



An accurate measurement method for the spatial resolution of area array spectral imaging equipment 180458

Chu Songnan, Liu Haitao, Hu Qiqi, Wang Haifeng, Zhang Dayong, Luo Yongquan

Based on the spectral images of black-white lines under accurate shift, a new method for detecting the spatial resolution of area array spectral imaging equipment was proposed. This method overcame the shortcoming of current methods, and its feasibility was validated by the experiment of one area array spectral imaging equipment.

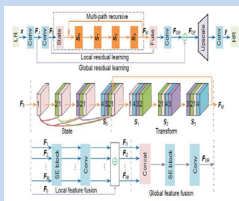
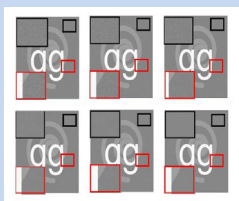


Image super-resolution via multi-path recursive convolutional network 180489

Shen Mingyu, Yu Pengfei, Wang Ronggui, Yang Juan, Xue Lixia

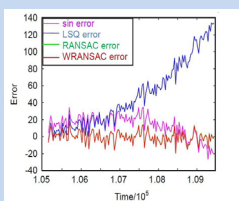
Most deep CNN-based super-resolution models use chained stacking to build the network, which results in the fact that the relationship between layers is weak and does not make full use of hierarchical features. A multi-path recursive convolutional network (MRCN) was designed to address these problems in SISR.



An anisotropic edge total generalized variation energy super-resolution based on fast l_1 -norm dictionary edge representations 180499

Mu Shaoshuo, Zhang Jiefang

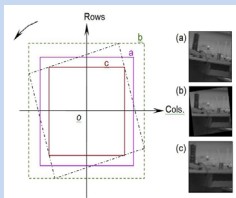
For camera-based imaging, low resolution and noise outliers are the major challenges. A novel super-resolution method - total generalized variation (TGV) super-resolution was proposed based on fast l_1 -norm dictionary edge representations.



Research on the application of RANSAC algorithm in electro-optical tracking of space targets 180540

Yan Lingjie, Huang Yongmei, Zhang Yahui, Tang Tao, Xia Yunxia

Random sample consensus (RANSAC) algorithm was introduced, which has been widely used in feature extraction in computer vision, to achieve higher prediction accuracy. The loss function of RANSAC algorithm was improved and the WRANSAC algorithm was proposed according to the distribution of observed data.



Video stabilization technique based on optical flow sensor

180581

Zhou Pengwei, Ji Yuanji, Dong Chao, Lu Tian, Hu Shichuan

In allusion of the video jitter problem caused by platform motion, a video stabilization technique based on optical flow sensor was presented. The method which has the characteristics of salutary video stabilization can meet the performance requirements of video stabilization and improve the capacity of disturbance resistance for platform.



Depth map super-resolution with cascaded pyramid structure

180587

Fu Xuwen, Zhang Xudong, Zhang Jun, Sun Rui

Due to the limitation of equipment, the resolution of depth map is low. Depth edges often become blurred when the low-resolution depth image is upsampled. The pyramid dense residual network (PDRN) was presented to efficiently reconstruct the high-resolution images.

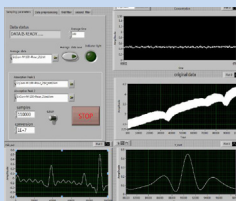


Texture target classification with CLBP and local geometric features

180604

Kou Qiqi, Cheng Deqiang, Yu Wenjie, Li Huayu

For the problems of needing pre-training and poor robustness to rotation and illumination changes of various improved algorithms based on local binary pattern (LBP), this paper presents a new texture classification algorithm by integrating the completed local binary pattern (CLBP) and the local geometric invariant features of the image surface..

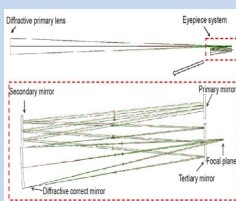


Design of seed respiration measurement system using virtual instrument

190051

Jia Liangquan, Qi Hengnian, Zhao Guangwu, Hu Wenjun, Gao Lu, Xu Qin

According to the characteristics of seed breathing CO_2 , a seed breathing detection system based on virtual instrument LabVIEW was designed based on tunable diode laser absorption spectroscopy (TDLAS).



Design of diffractive imaging optical system based on off-axis four-mirror

190099

He Chuanwang, Wang Lihua, Huang Peng, Dong Xiaochun, Fan Bin

According to the Schupmann's achromatic theory, a calculation method of off-axis four-mirror diffractive imaging optical system was introduced. This system has the advantages of broadband, high image quality, which can provide references for the development of reflective diffractive imaging optical system.