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本期封面图片由陆军军医
大学尹立建(180645)提供



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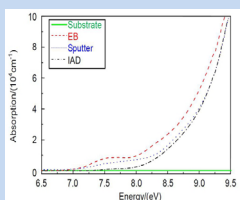
Article



- Application of improved firefly optimization algorithm in motion shadow removal 180120

Liu Lei, Cao Min, Zhang Xiao

A motion shadow removal algorithm based on improved firefly optimization algorithm was proposed. The optimal threshold was obtained by optimizing the 2-Otsu distance measure function based on the improved glowworm algorithm, and then the image was segmented and the moving shadow was removed.



- Characteristics of absorption edge of SiO₂ films 180220

Kong Mingdong, Li Bincheng, Guo Chun, Liu Chunding, He Wenyan

The absorption edge characteristics of single layer SiO₂ films prepared by electron beam evaporation, ion assisted deposition, and magnetron sputtering were investigated in detail via calculating their absorption edge spectrum, which is divided into three regions: the strong absorption, exponential absorption, and weak absorption regions.



- Design and implementation of DRFCN in-depth network for military target identification 180307

Liu Jun, Meng Weixiu, Yu Jie, Li Yahui, Sun Qiao

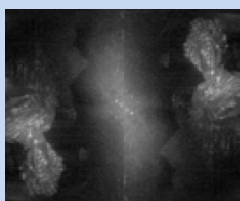
A new DRFCN in-depth network for military target identification was designed and implemented. The experimental analysis and discussion on the DRFCN algorithm show that it is obviously superior to the existing algorithm in terms of average accuracy, real-time and model size because of the convolution module dense connection method.



- Vehicle detection based on fusing multi-scale context convolution features 180331

Gao Lin, Chen Niannian, Fan Yong

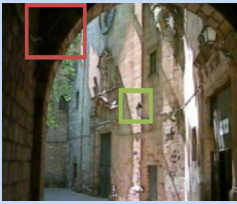
Aiming at the problems that the existing vehicle object detection algorithms based on convolutional neural network that cannot effectively adapt to the changes of object scale, self-deformation and complex background, a new vehicle detection algorithm based on multi-scale context convolution features was proposed.



- Resolution enhancement algorithm based on infrared digital holography imaging through flame 180418

Chai Jinyan, Huang Chao, Cheng Chunyan, Yang Chao

The use of new technologies combining infrared thermal imaging and digital holographic imaging to observe the targets in the fire field has become a current research focus. A new image processing algorithm to suppress the noise of infrared digital holographic reconstruction was proposed.

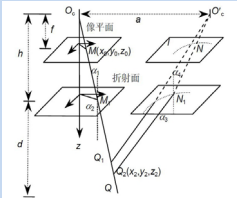


Details preserved brightness equalization algorithm for non-uniform illumination images

180439

Xi Jiaqi, Chen Xiaodong, Wang Yi, Cai Huaiyu, Sun Gang, Yang Yunsheng

In order to overcome the limitation of current image enhancement algorithms for non-uniform illumination images, a brightness equalization algorithm was proposed to preserve the detail information in low illumination region and normal illumination region at the same time.

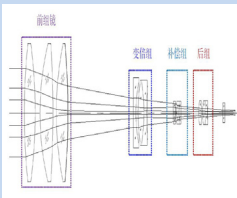


An underwater stereo matching method based on ORB features

180456

Li Jiakuan, Sun Chunsheng, Hu Yiming, Yu Hongzhi

Since the traditional algorithm may cause problems such as slow running speed and more mismatching points when perform stereo matching on underwater environment, the ORB characteristics detection and curve restriction was applied.

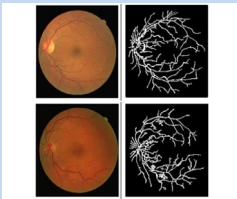


Research on a 30 times ratio continuous zoom television optical system adjustment technology

180462

Zhang Xiangming, Wang Zhongqiang, Chang Ming, Li Yuxi, Jiang Feng, Wang Zhangli, Ma Li, Zhao Wei

Aiming at the problem of high tolerance sensitivity and difficult adjustment of 30 times continuous zoom TV, the mechanical centering tooling was used to make the central axis of the moving assembly parallel to the axis of the guide rod, and the optical axis of all components was corrected by the optical axis of the front mirror group.

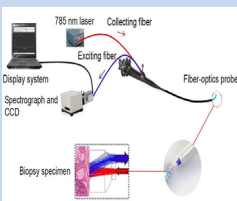


Retinal vascular segmentation combined with PCNN and morphological matching enhancement

180466

Xu Guangzhu, Wang Yawen, Hu Song, Chen Peng, Zhou Jun, Lei Bangjun

Aiming at the problem of large workload and strong subjectivity for manual retinal vessels extraction, a retinal vessel segmentation method that combines regional growing strategy, pulse coupled neural network (PCNN), a Gaussian filter bank and a Gabor filter were proposed.



A feasibility study of using fiber-optic Raman spectrum system for fast diagnosis of gastric cancer

180645

Yin Lijian, Rao Yunjiang, Dai Jianhua, Ran Zengling, Li Zhuoyue, Chen Yao, Peng Guiyong

A method for fast diagnosing gastric cancer was proposed by combining optical fiber Raman spectroscopy system matching the gastroscop with the ratios of the spectral integral energy.