ABSTRACTS

**ВОПРОСЫ РАДИОЭЛЕКТРОНИКИ**

### серия

**ТЕХНИКА ТЕЛЕВИДЕНИЯ**

**2018 вып.5**

*Kuleshov S.V., Zaytseva A.A., Aksenov A.Y.* **Technical tools for transport DVB-streams processing. Рр. 4–8.** The modern technical tools for digital TV streams processing are considered in the paper. The comparison of solutions from different developers is conducted, their features are considered. **Keywords:** SDI, ASI, digital TV, transport stream

*Chafonova V.G.* **Applications of virtual reality technologies in television. Рр. 9–14.** For television, virtual reality is a fundamentally new way of development that requires detailed study and research. This article is dedicated to the creation of VR-content, its perception by viewers, provides an overview of existing equipment designed to create and reproduce VR-content. The article explores the factors preventing the wide dissemination of virtual reality technologies in the field of television broadcasting, and also in the article the most successful media projects related to the use of VR technologies are reflected. **Keywords:** virtual reality, television, VR-content, immersive effect, stereo image

*Fomin I. S., Orlova S. R., Gromoshinskii D. A., Bakhshiev A.V.* **Research on Convolutional Neural Networks in the task of Object Detection in Space Docking Images. Рр. 15–20.** Presented research on detection of visual landmarks on images obtained during space docking. Initially, images were obtained in difficult conditions by an analog camera, followed by digitization, images have low quality. After training on database of images of the docking process obtained from open sources the selected network achieves mAP up to 85.1%, which is better than previously studied approaches. **Keywords:** space docking, object detection, neural networks, deep learning, machine vision.

*Chernogorov V. S.* **Memory access arbitration in multicore systems on Intel-FPGA chip. Рр. 21–24.** The article examines the performance of multiprocessor systems and discusses the mechanism for resolving memory access conflicts. **Keywords:** multicore systems, parallel computing, memory access arbitration, FPGA

*Baranov P. S., Kurnikov A. S.* **Multi-pulse active television system model for 3D imaging. Рр. 25–30.** Multi-pulse active television systems for 3D imaging are considered, advantages and disadvantages of each of them are defined; the new system and the element base for hardware model are offered. **Keywords:** lidar, map of depth, multi-pulse active television system

*Morozov A. V, Kapitonov D. A, Sashin D. I.* **Color correction and image contrasting with deep color separation. Рр. 31–35.** A method color correction using a color correction matrix is considered. In calculating this, the features of a photodetector with a deep color separation are taken into account. Also considered an algorithm for combating color noise. **Keywords:** color correction matrix, photodetector with deep color separation, auto-contrast

*Koriushkin A.V., Larina T.S.* **Domestic multiple-element photodetectors for earth remote sensing systems. Рр. 36–41.** The article is about domestic matrix photosensitive CCD devices, operating in the time delay and integration mode (TDI), intended for on-board operation as part of space satellites that are used for Earth remote sensing. **Keywords:** charge-coupled device, a mode time delay and integration, remote sensing of the Earth

*Popov A. G., Kirilenko O. I.* **CMOS Image Sensors for special systems.
Рр. 42–48.** The results of the development and switching on of five types of photosensitive CMOS sensors for special purposes are demonstrated. The results of tests for radiation resistance аre shown. **Keywords:** CMOS Image Sensors, radiation resistance

*Rypakova E.V., Mikhin A.V., Perchatkina D.S., Larina T.S.* **Construction of photodetectors for Earth observing space systems. Рр. 49–55.** The article is devoted to construction of CCD TDI for Earth observing in panchromatic and multispectral range. The design of multichip case assembly for panchromatic channel is considered. JSC «RPE «ELAR» has developed the model of focal plane that based on multichip hybrid case assemblies. **Keywords:** charge-coupled device, a mode time delay and integration, remote sensing of the Earth, multichip hybrid modules

*Chirkunova A. A.* **Optimization spectral characteristics of the channels multispectral tv system. Рр. 56–61.** The criteria for optimizing the spectral characteristics of the channels multispectral television system are considered. A method for determining the number and bound of the spectral ranges of object detection is proposed. **Keywords:** spectral filter, multispectral TV system, spectral attribute of object, wavelength

*Prokonich A. V., Chepelev A. G.* **Methodology of determining parameters of a TV chamber incoming into a stereopar. Рр. 62–65.** A method for calculating vision systems is proposed. The dependence of the parameters of the television camera, which is part of the stereopair, on the speed and size of the object of observation was considered. **Keywords:** stereo vision, optical system, tracking, range, relative speed

*Ermolaev R.S.* **Increasing the efficiency of visual information representation**. **Рр. 66–68.** The work considers the possibility of increasing the efficiency of visual information representation by analyzing the means of its representation with using dominance criterion. **Keywords:** visual perception, video information system, directed graph, dominance criterion

*Bulavin E. I., Yanin A. A.* **Methods for increasing robustness of the embedded software used in digital TV measuring devices. Рр. 69–74.** Methods and patterns for development of robust software are considered. **Keywords:** software, type system, testing, verification

*Morozov A. V., Sashin D. I., Chepelev A. G.* **High-power lighter for television test chart on a paper. Рр. 75–80.** A device to achieve high luminance of television test chart on a paper using LED strip light is proposed. Questions of lighters positioning against test chart and achieving luminance are considered. The results of proposed device prototyping are shown. **Keywords**: television test chart, lighter, LED strip lent

*Satserdov P. I.* **Research of the radiation hardness of the positional sensible device Fonon-7. Рр. 81–84.** The article says about experiments to estimate and measure radiation hardness of position sensible device (PSD) Fonon-7. It starts with the description of structure of PSD and then describes the details of the experiments. At the end there is theoretic and scientific opinion of the results of experiments. **Keywords:** radiation hardness, gamma ray, neutrons, position sensible device, Fonon-7.