**DEEP CONVOLUTION NEURAL NETWORK FOR BIG DATA MEDICAL IMAGE CLASSIFICATION**

**[1] Q. Zhu, B. Du, and P. Yan:** Accurate segmentation of the prostate from magnetic resonance (MR) images provides useful information for prostate cancer diagnosis and treatment. However, automated prostate segmentation from 3D MR images still faces several challenges. The complex background texture and large variation in size, shape and intensity distribution of the prostate itself make segmentation even further complicated. Since large-scale dataset is one of the critical components for the success of deep learning, lack of sufficient training data makes it difficult to fully train complex CNNs. To tackle the above challenges, in this paper boundary-weighted domain adaptive neural network (BOWDA-Net) is proposed. To make the network more sensitive to the boundaries during segmentation, a boundary-weighted segmentation loss (BWL) is proposed.

**Summary:** In this paper boundary-weighted domain adaptive neural network (BOWDA-Net) is proposed. To make the network more sensitive to the boundaries during segmentation, a boundary-weighted segmentation loss (BWL) is proposed. . Furthermore, an advanced boundary-weighted transfer leaning approach is introduced to address the problem of small medical imaging datasets. We evaluate our proposed model on the publicly available MICCAI 2012 Prostate MR Image Segmentation (PROMISE12) challenge dataset.

**[2] Q.Zhu, B.Du, P.Yan, H.Lu, and L.Zhang:** Bladder wall segmentation from Magnetic Resonance (MR) images plays an important role in diagnosis. Since the thickness of the bladder wall is a key indication of bladder cancer. There are several methods that have been used for bladder wall segmentation, such as level sets and Active Shape Model (ASM). However, the weak boundaries, the artifacts inside bladder lumen and the complex background outside the bladder wall make the bladder wall segmentation very challenging. To overcome these difficulties and obtain accurate bladder walls, in this paper, a shape prior constrained particle swarm optimization (SPC-PSO) model is proposed to segment the inner and outer boundaries of the bladder wall. The bladder walls are divided into two categories: strong boundaries and weak boundaries by the proposed model.

**Summary**: In this paper, a shape prior constrained particle swarm optimization (SPC-PSO) model is proposed to segment the inner and outer boundaries of the bladder wall. The bladder walls are divided into two categories: strong boundaries and weak boundaries by the proposed model. For the strong boundaries, the proposed model can reserve it. For the weak boundaries, the model applies the shape prior to guide the process of segmentation**.**

**[3] Q. Zhu, B. Du, B. Turkbey, P. Choyke, and P. Yan:** Segmentation of the prostate from Magnetic Resonance Imaging (MRI) plays an important role in prostate cancer diagnosis. However, the lack of clear boundary and significant variation of prostate shapes and appearances make the automatic segmentation very challenging. In the past several years, approaches based on deep learning technology have made significant progress on prostate segmentation. However, those approaches mainly paid attention to features and contexts within each single slice of a 3D volume. As a result, this kind of approaches faces many difficulties when segmenting the base and apex of the prostate due to the limited slice boundary information. To tackle this problem, in this paper, we propose a deep neural network with bidirectional convolutional recurrent layers for MRI prostate image segmentation.

**Summary:** A deep neural network is proposed with bidirectional convolutional recurrent layers for MRI prostate image segmentation. In addition to utilizing the interslice contexts and features, the proposed model also treats prostate slices as a data sequence and utilizes the interslice contexts to assist segmentation. The experimental results show that the proposed approach achieved significant segmentation improvement compared to other reported methods.

**[4] K.Kranthi Kumar and T.V.Gopal:** Content Based Image Retrieval (CBIR) is a prominent research area in effective retrieval and management process for large image databases. Which was a bottleneck in reducing semantic gap issue to solve, many approaches have been proposed. Among them, Relevance Feedback (RF) is a technique absorbed into CBIR systems to improve retrieval accuracy using user given feedback. One of the traditional methods to enact relevance feedback is Feature Reweighting (FRW), it is useful technique to enhance retrieval performance based on the acquired feedback from user. The assumption for previous FRW approaches are that the length of feature vectors for images are fixed and use only the information from the set of images send back in the early query result for feature reweighting. **Summary:** In this article, examined systematically the proposed system with various weight update strategies and compared output retrieval results and proposed a new self-order feature reweighting approach in CBIR to reduce semantic gap using relevance feedback which we experimented with COREL database with 25 different categories and each category containing 100 number of relevant images.

**[5] R.Ashraf, K.B.Bajwa, and T.Mahmood:** Segmentation of the images is considered as a solution but there isn’t any technique which can guarantee the object extraction in a robust way. Another limitation of the segmentation is that, most of the image segmentation techniques are very slow and still their results are not reliable. To overcome these problems a Bandelets transform based image representation technique is presented in this paper, which reliably returns the information about the major objects found in an image. For image retrieval purposes Support Vector Machine are applied and the performance of the system is evaluated on three standard data sets used in the domain of content based image retrieval.

**Summary:** To overcome the problems which are in the existing method, a Bandelets transform based image representation technique is presented in this paper, which reliably returns the information about the major objects found in an image. For image retrieval purposes Support Vector Machine are applied and the performance of the system is evaluated on three standard data sets used in the domain of content based image retrieval.

**[6] G.Wu, W.Lu, G.Gao, C.Zhao, and J.Liu:** Deep learning has been successfully applied to visual tracking due to its powerful feature learning characteristic. However, existing deep learning trackers rely on single observation model and focus on the holistic representation of the tracking object. When occlusion occurs, the trackers suffer from the contaminated features obtained in occluded areas. In this paper, we propose a regional deep learning tracker that observes the target by multiple sub-regions and each region is observed by a deep learning model. In particular, we devise a stable factor, modelled as a hidden variable of the Factorial Hidden Markov Model, to characterize the stability of these sub-models. The stability indicator not only provides a confidence degree for the response score of each model during inference stage, but also determines the online training criteria for each deep learning model.

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