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Deep learning framework for clinical diagnosis - a healthcare system

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One of the main targets of computer vision is to interpret the content of image and video. To interpret image content, one of the essential goals is to build a model depending on a known set of features extracted from image data. The built model is then employed to produce inference of the unknown data-set. Medical image segmentation is the part of computer vision and its target is to labeling each pixel of an object of interest. It is often a key task for clinical applications, varying from computer aided diagnosis for lesions detection to therapy planning and guidance. Medical image segmentation helps clinicians focus on a particular area of the disease and extract detailed information for a more accurate diagnosis. An end to end deep learning approach, Convolutional Neural Networks have shown state-of-the-art performance for automated medical image segmentation. However, it doesn't perform well in case of complex environments. U-Net is another popular deep learning architecture especially for biomedical imaging. It consists of contraction and expansion path to pixel-wise predict the dataset. This model is better than previously available medical image segmentation approaches. However again, it fails to produce the promising results with voxels. For that, incremental version of U-Net, Multiplanar U-Net has been developed in 2019. In this talk, we will discuss about a simple and thoroughly evaluated deep learning frameworks for segmentation of arbitrary medical image volumes. We will also discuss about specific framework, which doesn't require human interaction, task-specific information and it is based on a fixed model topology and hyper parameter set.

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