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Title	Performance Comparison of Deep Learning Approach for Automatic CT Image Segmentation by Using Window Leveling
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Abstract

In tumor radiotherapy process, radiologist need to make multiple organs contouring on medical images such as CT scans for computing appropriate dose and making a suitable treatment plan for patients. This is a necessary step before treatment. This paper was written to be one of automatic image segmentation research by using deep learning. The experiment compared performance between preprocessing input datasets with custom window leveling normalization and following by organ types. We chose the bladder, the rectum and the femur as target organs in this paper. Datasets are directly obtained from Siriraj Hospital that contoured by radiologists. There are 10 datasets of each organs. We used U-Net as main structure to extract features on image then evaluated by dice similarity coefficient (DSC) and intersection over union (IoU). The experiment resulted that training with custom window leveling normalization is better performance. The bladder got DSC and IoU of 78.34% and 70.46%, femur were 39.71% and 28.03%, and rectum were 19.19% and 12.20%, respectively.