A deep learning based fracture detection in arm bone X-ray images

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Abstract:
A large number of arm fracture-related injuries are reported in hospitals and clinics around the world. In this paper, we propose a novel deep learning based fracture detection in arm bone X-ray images. First, we preprocess the Xray image by using an algorithm that is a combination of the YOLACT++ for image segmentation and Contrast Limited Adaptive Histogram Equalization for image contrast enhancement. Then, YOLOv4 is trained on a small dataset with four data augmentation techniques to identify and locate the position of bone fracture on X-ray images. The topmost result obtained is 81.91% by using our proposed method. Experimental results also confirm that our method outperforms the Faster-RCNN based solution while implementing on the small dataset.

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