
Abstract

This study aims to evaluate the effect of augmentation methods on the performance of polyp semantic segmentation models using U-Net and SegNet architectures. Input size and augmentation level were analyzed in the context of improving segmentation accuracy. Test results show that data augmentation has a significant positive impact on model performance, especially at smaller input sizes. The highest performance was achieved at an input size of 320×320 pixels with a combination of heavy augmentation, where U-Net achieved a Dice Coefficient of 0.7311 and an IoU of 0.5753. While SegNet achieves a Dice Coefficient of 0.8221 and an IoU of 0.7205. These results show that SegNet has potential in the semantic segmentation task of polyps when combined with the best input size and augmentation. In conclusion, data augmentation methods have an important role in improving the accuracy of polyp semantic segmentation models, and the selection of model architecture also plays a key role in achieving the best results.

Keywords: Semantic Segmentation, Data Augmentation, U-Net, SegNet, Polyp.
