| Paper ID: | 1571068640 |
|---|---|
| Paper Title: | A Comparison of DeeplabV3+ with Backbone CNNs: ResNet-18 vs. ResNet-50 for Glioblastoma Brain Tumor Segmentation in MRI Images |
| Authors: | Naramon Yamcharoen, Noppanon Nobnop, Thanadon Piboonthummasak and Theekapun Charoenpong (Srinakharinwirot University, Thailand) |
| Email: | naramon.yam@g.swu.ac.th |

## Abstract

Surgery remains the commonly chosen solution for treating brain tumors and alleviating patient symptoms. Planning the surgery involves determining the position of brain tumors. Tumor segmentation in MRI images is typically manually rechecked by a doctor or expert. In this paper, we proposed a method for segmenting brain tumors from MRI images using deep learning algorithms. We employed the DeeplabV3+ architecture, which is popular in the medical field for pattern recognition and classification tasks. The DeeplabV3+ architecture includes a backbone CNNs for feature extraction, and we utilized a Residual Network for this purpose. We focus on the performance comparison of ResNet-18 and ResNet-50 within the DeeplabV3+ architecture for brain tumor segmentation in MRI images. The ResNet-50 achieved an accuracy of 98.72%, an IoU of 56.53%, and a DSC of 72.23%. In comparison, ResNet-18 achieved accuracy of 98.5%, an IoU of 52.63%, and a DSC of 68.96%. The results showed that ResNet-50 has better performance than ResNet-18.