**Abstract**

 Among brain tumours, gliomas are the most common and aggressive, leading to a very short life. Thus, treatment planning is a key stage to improve the quality of life of oncological patients. Magnetic Resonance Imaging (MRI) is a widely used imaging technique to assess these tumours, but the large amount of data produced by MRI prevents manual segmentation in a reasonable time, limiting the use of precise quantitative measurements in the clinical practice. So, automatic and reliable segmentation methods are required. However, the large spatial and structural variability among brain tumors make automatic segmentation a challenging problem. The proposed system is an automatic segmentation method based on Convolution Neural Networks (CNN), exploring small 3×3 kernels. Our proposal was validated using BRATS database