

Efficient MRI Segmentation and Detection of Brain Tumor using CNN

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Abstract: Intracranial tumors are a form of cancer that develops on its own inside the skull. One in every four fatalities are caused by a brain tumor. As a result, early diagnosis of the tumor is critical. A multitude of segmentation approaches is available to achieve this goal. The primary drawback of current techniques is their low segmentation accuracy. A preventative medical step of early diagnosis and assessment of a brain tumor is done with the aid of magnetic resonance imaging (MRI). Magnetic resonance imaging (MRI) provides precise information about human delicate tissue, which assists in brain tumor identification.

Keywords: Segmentation, Brain Tumor, Convolutional Neural Network, Deep Learning, etc.

REFERENCES

- [1] RNovel Based Approach for Extraction of Brain Tumor in MRI Images Using Soft Computing Techniques by A. Sivaramakrishnan And Dr. M. Karnan.
- [2] Improved Edge Detection Algorithm for Brain Tumor Segmentation by Asra Aslam, Ekram Khan and, M. M. Sufyan Beg.
- [3] Image Segmentation by Clustering Methods: Performance Analysis by B. Sathya and R. Manavalan
- [4] Image Segmentation for Early-Stage Brain Tumor Detection using Mathematical Morphological Reconstruction by Devkota, B. & Alsadoon, Abeer & Prasad, P.W.C. & Singh, A.K. & Elchouem
- [5] Intelligent Brain Tumor lesion classification and identification from MRI images using a K-NN technique by K. Sudharani, T. C. Sarma and K. Satya Rasad
- [6] Kaur, Jaskirat & Agrawal, Sunil & Renu, Vig. (2012). A Comparative Analysis of Thresholding and Edge Detection Segmentation Techniques. International Journal of Computer Applications. vol. 39.pp. 29-34.10.5120/4898-7432
- [7] M. Kumar and K. K. Mehta, "A Texture based Tumor detection and automatic Segmentation using Seeded Region Growing Method," International Journal of Computer Technology and Applications, ISSN: 2229-6093, Vol. 2, Issue 4, PP. 855-859 August 2011
- [8] Marroquin J. L., Vemuri B.C., Botello S., Calderon F. (2002) An Accurate and Efficient Bayesian Method for Automatic Segmentation of Brain MRI. In: Heyden A., Sparr G., Nielsen M., Johansen P. (eds) Computer Vision - ECCV 2002. ECCV 2002. Lecture Notes in Computer Science, vol 2353. Springer, Berlin, Heidelberg.
- [9] Minz, Astina, and Chandrakant Mahobiya. "MR Image Classification Using Adaboost for Brain Tumor Type." 2017 IEEE 7th International Advance Computing Conference (IACC) (2017): 701-705.
- [10] P.S. Mukambika, K Uma Rani, "Segmentation and Classification of MRI Brain Tumor," International Research Journal of Engineering and Technology (IRJET), Vol.4, Issue 7, 2017, pp. 683 – 688, ISSN: 2395-0056.