

# An Implementation Convolutional Neural Network for Detection of Brain Tumor

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**Abstract:** *Image processing is the one of the most demanding and promising field nowadays. Tumor is a abnormal growth of cell in human brain. The tumor can be categorized as benign(non-cancerous) and malignant(cancerous). Earlier stage of tumor is used to be detected manually through observation of image by doctors and it takes more time and sometimes gets inaccurate results. Today different automated tools are used in medical field. These tools provide a quick and precise result. Magnetic Resonance Images (MRI) is the most widely used imaging technique for analyzing internal structure of human body. The MRI is used even in diagnosis of most severe disease of medical science like brain tumors. The brain tumor detection process consist of image processing techniques involves four stages. Image pre-processing, image segmentation, feature extraction, and finally classification. There are several existing of techniques are available for brain tumor segmentation and classification to detect the brain tumor. There are many techniques available presents a study of existing techniques for brain tumor detection and their advantages and limitations. To overcome these drawbacks, propose a Convolution Neural Network (CNN) based classifier. CNN based classifier used to compare the trained and test data, from this get the best result.*

**Keywords:** Convolutional Neural Network

## REFERENCES

- [1]. Abdullahi, H. S., Sheriff, R. E. and Mahieddine, F. (2017) "Convolution neural network in precision agriculture for plant image recognition and classification," in 2017 Seventh International Conference on Innovative Computing Technology (INTECH). IEEE.
- [2]. Abouelmehdi, K., Beni-Hessane, A. and Khaloufi, H. (2018) "Big healthcare data: preserving security and privacy," Journal of big data, 5(1). doi: 10.1186/s40537-017-0110-7.
- [3]. Al-Khuzaei, F. E. K., Bayat, O. and Duru, A. D. (2021) "Diagnosis of Alzheimer disease using 2D MRI slices by convolutional neural network," Applied Bionics and biomechanics, 2021, p. 6690539.
- [4]. Almryad, A. S. and Kutucu, H. (2020) "Automatic identification for field butterflies by convolutional neural networks," Engineering Science and Technology an International Journal, 23(1), pp. 189–195.
- [5]. Altaei, M. S. M. and Kamil, S. Y. (2020) "Brain tumor detection and classification using SIFT in MRI images," in PROCEEDINGS OF THE 2020 2ND INTERNATIONAL CONFERENCE ON SUSTAINABLE MANUFACTURING, MATERIALS AND TECHNOLOGIES. AIP Publishing.
- [6]. Amin, J. et al. (2019) "Brain tumor detection using statistical and machine learning method," Computer methods and programs in biomedicine, 177, pp. 69–79.
- [7]. Anila, S., Sivaraju, S. S. and Devarajan, N. (2017) "A new contourlet based multiresolution approximation for MRI image noise removal," National Academy science letters. National Academy of Sciences, India, 40(1), pp. 39–41.
- [8]. A.I. technical: Machine vs deep learning (2019) Lawtomated.com. Available at: <https://lawtomated.com/ai-technical-machine-vs-deep-learning/> (Accessed: May 12, 2021).
- [9]. Badža, M. M. and Barjaktarović, M. Č. (2020) "Classification of brain tumors from MRI images using a convolutional neural network," Applied sciences (Basel, Switzerland), 10(6), p. 1999.
- [10]. Banerjee, S. (2017) "Brain Tumor Detection and Classification from Multi- Channel MRIs using Deep Learning and Transfer Learning."

- [11]. Bisong, E. (2019) “Google Colaboratory,” in Building Machine Learning and Deep Learning Models on Google Cloud Platform. Berkeley, CA: Apress, pp. 59–64.
- [12]. Boyat, A. K. and Joshi, B. K. (2015) “A review paper : Noise models in digital image processing,” Signal and image processing: an international journal, 6(2), pp. 63–75.
- [13]. Brain tumours (no date) Nhs.UK. Available at: <https://www.nhs.uk/conditions/brain-tumours/> (Accessed: April 28, 2021).
- [14]. Browarczyk, J., Kurowski, A. and Kostek, B. (2020) “Analyzing the effectiveness of the brain-computer interface for task discerning based on machine learning,” Sensors (Basel, Switzerland), 20(8), p. 2403.
- [15]. Brownlee, J. (2019a) Convolutional neural network model Innovations for image classification, Available at: <https://machinelearningmastery.com/review-of-architectural-innovations-for-convolutional-neural-networks-for-image-classification/> (Accessed: April 28, 2021).