

Brain Tumor Classification and Survival Prediction using Multi-Tier Channel Attention CNN (MTCACNN) with MTZR Moments and Statistical Features.

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- **Abstract:** Out of many prevailing infections in medical science, the world is facing a problem with brain tumor. This brain tumor corresponds to the surprising mass of tissue wherein cells create and copy fiercely, and this shall be grouped into primary and metastatic. The brain tumors can be identified using Magnetic resonance imaging (MRI). In this paper, the tumor is segmented using Fully connected pyramid pooling network (FCPPN) architecture. To track down specific locale of tumor or the type of tumor we need to move for classification technique. This proposed classification technique is called Multitier Channel Attention Convolution Neural Network (MTCACNN). After classifying the tumor, the overall survival prediction is the testing task. The overall prediction is named as Multi-Tier Zernike (MTZR) and it is performed by the handcrafted features and the Euclidean distance was calculated for assessing the severity of the tumor. Zernike moments were also performed for extracting the shape features. Finally, a Regression- based concept was applied to discover the relationship between the result and the predictor of the variable. Finally, Linear and Gaussian regressions were prepared to forecast the overall survival of patients. Linear Regression shows the best result for OS prediction.
- **Keywords:** Medical science, Magnetic resonance imaging (MRI), MTCACNN, Multi-Tier Zernike