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The Apex Role of Artificial Intelligence to Determining the Dangerous Tumors on the Surface of the Human Brain

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Abstract: ***The major Conceptual emoluments in Neuro surgery to the study of high dangerous tumors on the outer surface and internal structure of the human brain. These studies suggest that human brain tumors are organized as a hierarchy and how to determine and how to remove the injured part in the brain with riskless manner by using the apex role of machine learning in Artificial intelligence***
Keywords: Brain tumor, Brain Mapping, Imagination, MRI investigation, PET, CT and etc.,

I. INTRODUCTION

This section explains the types of treatments that are the standard of care for a brain tumor. “Standard of care” means the best treatments known. When making treatment plan decisions, you are encouraged to consider clinical trials as an option. A clinical trial is a research study that tests a new approach to treatment by the latest methods of Artificial Intelligence. Doctors want to learn whether the new treatment is safe, effective, and possibly better than the standard treatment. Clinical trials can test a new drug, a new combination of standard treatments, or new doses of standard drugs or other treatments. Clinical trials are an option to consider for treatment and care for all types of brain tumors.

Researchers used Machine learning to improve the images from MRI scanners. After further development, this Artificial Intelligence techniques may enables better quality and accurate medical images for people needing MRI,PET,CT and other human body examination systems.

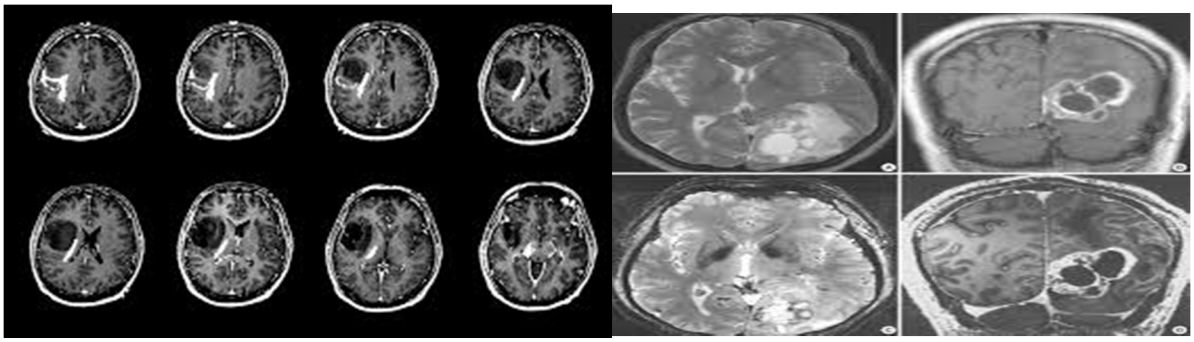
II. BRAIN MAPPING

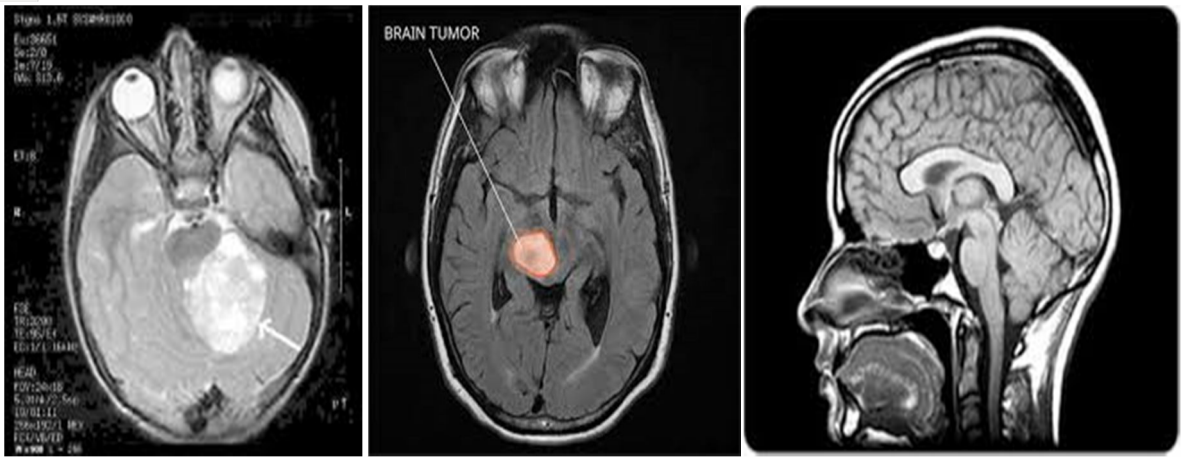
Brain mapping is a set of Neuro scientific technique which is predicated on the mapping of chief characteristics of neurons onto spatial representations of the human brain resulting in map structure.

Brain images are restructures from the some MRI examination with a conventional approach left area and the right area of automap.Here, Automap yields higher quality images and is faster than conventional methods in the imagination of various investigation methods. All neuro surgical doctors rely on the results of MRI scans and other human body investigation methods to view internal and external spots of the brain clearly and is possible to determining the abnormal tissues on the surface of the human brain.

III. INVESTIGATION THROUGH MAGNETIC RESONANCE OF IMAGINATION

MRI (Magnetic Resonance of Imagination) uses radio waves and strong magnetic field to generate the signals from tumors or tissues on the surface or internal structure of the brain. A computer translates these signals into a detailed display, 3D-picture representations on the screen. The MRI scanning system is most popularly used for imaging the Brain Mapping.





Getting an MRI means being in a noisy, claustrophobia inducing tube. For many, that's no fun. for others like children's or the very unwell it's worse. So, to make these diagnostic tools run even faster, researchers are exploring in corpora ting a new tactic using artificial intelligence to take the raw data generated by the MRI machine and create readable images.

Using Artificial Intelligence (AI), it may be possible to capture less data and therefore image faster, while still preserving or even enhancing. All the rich information content of the magnetic resonance images.

Since AUTOMAP is implemented as feed forwarded neural networks, as the speed of image reconstruction is a most instantaneous just ten of milliseconds. Automap would provides instant image reconstruction to inform the decision making process during scanning and could prevent the need for additional investigations. The advent of powerful computing machines and decreased hardware costs has led to the development of many computer-assisted tools (CAT) for cancer diagnosis by the research community. It is projected that CAT may help radiologists in improving the precision and consistency of the diagnostic results. In this study, various CAT-based intelligent learning methods i.e., machine learning (ML) and deep learning (DL) for automatic tissue characterization and tumor segmentation has been discussed. The basic objective of this paper is to highlight state-of-the-art of brain tumor classification methods, current achievements, challenges, and find the future scope.

IV. MAGNETIC RESONANCE IMAGING WITH MACHINE LEARNING OF AI

MRI is a radiation free and therefore a safer imaging technique than CT and provides finer details of the brain, spinal cord and vascular anatomy due to its good contrast. Axial, sagittal, and coronal are the basic planes of MRI to visualize the brain's anatomy. The most commonly used MRI sequences for brain analysis are Tl-weighted, T2-weighted, and FLAIR .Tl-weighted scan provides gray and white matter contrast. T2-weighted is sensitive to water content and therefore well suited to diseases where the water accumulates inside brain tissues. T1- and T2-weighted images are also used to differentiate cerebrospinal fluid (CSF). The CSF is colorless and found in the brain and spinal cord. It looks dark in T1-weighted imaging and bright on T2-weighted imaging. The third sequence is fluid attenuated inversion recovery (FLAIR) which is similar to T2-weighted image except for its acquisition protocol. FLAIR is used in pathology to distinguish between CSF and brain abnormalities. FLAIR can locate an edema region from CSF by suppressing free water signals, and hence per ventricular hyper intense lesions are clearly visible in the images.

V. LIVE DETECTION OF EPILEPSY USING ARTIFICIAL INTELLIGENCE

Epilepsy is among the most common neurological disorders that affects 65 million people of all ages globally. In the United States, 3.4 million Americans have epilepsy according to the CDC. Epilepsy can interfere with a person's ability to drive a car, play sports, swim, or exercise. It is a non-contagious brain disorder where recurrent, unprovoked seizures occur.

Epilepsy may be caused by many factors, including traumatic brain injuries, stroke, and loss of oxygen to the brain, brain tumor, parasitic brain infections like malaria, neuron cysticercoids from tapeworms, viral infections, bacterial brain infections, neurological diseases, genetic predisposition, and other causes.

Artificial intelligence (AI) and genomics are being deployed to help those suffering from epilepsy. Solutions for epilepsy that use AI include personalized medicine, seizure management, and drug discovery.

VI. PHARMACOKINETICS AND PHARMACORESISTANCE USING AI PATTERNS

Antiepileptic drugs (AED) typically treat the seizures. As with any medication, there is the chance that some patients may experience adverse reactions. For certain individuals, AED medications may exacerbate seizure control, or even be life-threatening. Furthermore, genetic mutations may impact the efficacy of antiepileptic medication. The enzymes from the cytochrome P450 genes metabolize medications, among other functions. Studies have shown that individuals with polymorphisms (gene variation) of the gene encoding CYP enzymes can negatively impact serum antiepileptic concentrations and result in drug toxicity.

VII. CONCLUSION

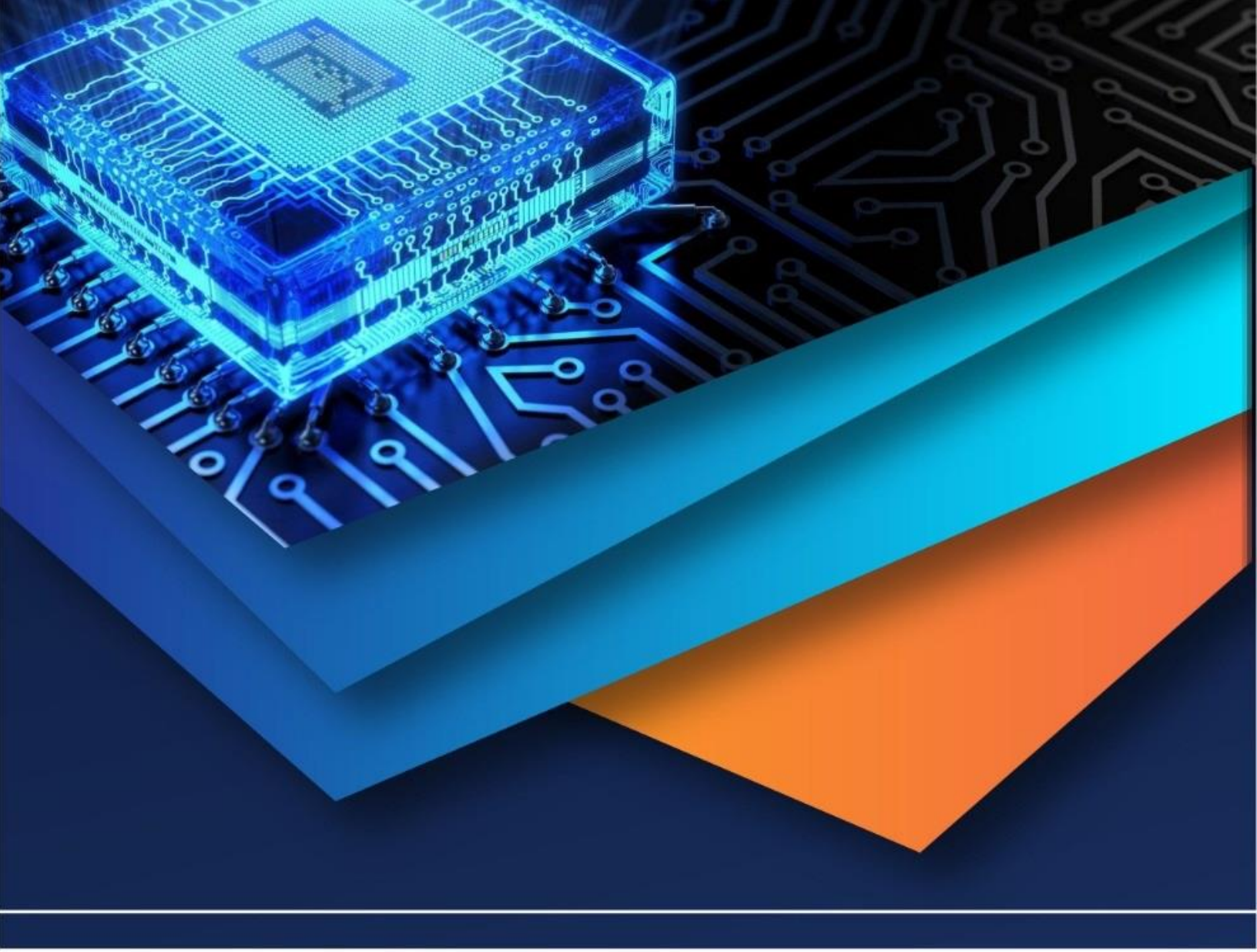
There are many different AI techniques available which are capable of solving a variety of clinical problems. However, in spite of earlier optimism, medical AI technology has not been embraced with enthusiasm. One reason for this is the attitude of the clinicians towards technology being used in the decision-making process. Paradoxically, there is no qualm in accepting the biochemical results generated from an auto-analyzer or images produced by magnetic resonance imaging. However, it is the obligation of researchers active in this field to produce evidence that these techniques work on a practical level. The need to undertake more randomized controlled studies to prove the efficacy of

AI systems in medicine are, therefore, vital. There is compelling evidence that medical AI can play a

Vital role in assisting the clinician to deliver health care efficiently in the 21st century. There is little doubt that these techniques will serve to enhance and complement the ‘medical intelligence’ of the future clinician.

REFERENCES

[1] Lagerwaard F., Lavender P.C., Nowak P.J.C.M., Eijkenboom W.M.H., Hansen’s P.E.J., Schmitz P.M. Identification of prognostic factors in patients with brain metastases:
[2] Smith-Bindman R., Lipson J., Marcus R., Kim K.P., Mahesh M., Gould R., de González A.B., Miglioretti D.L. Radiation dose associated with common computed tomography examinations and the associated lifetime attributable risk of cancer.
[3] Dong Q., Welsh R.C., Chenevert T.L., Carlos R.C., Maly-Sundgren P., Gomez-Hassan D.M., Mukherji S.K. Clinical applications of diffusion tensor imaging. J. Magn. Reson. Imaging.
[4] Khoo M.M.Y., Tyler P.A., Saifuddin A., Padhani A.R. Diffusion-weighted imaging (DWI) in musculoskeletal MRI
[5] Savoy R.L. Encyclopedia of Neuroscience. Elsevier; Charlestown, MA, USA: 1999. Functional magnetic resonance imaging.
[6] Garcon M.N., Boucher on L., Can A., Madabhushi A., Rajpoot N., Yener B. Histopathological image analysis:
[7] Fabelo H., Ortega S., Lazcano R., Madroñal D., M Callicó G., Juarez E., Salvador R., Bulters D., Bulstrode H., Szolna A., et al. An intraoperative visualization system using hyper spectral imaging to aid in brain tumor delineation.
[8] Peterson H., Gustafson D., Bergstrom D. Hyper spectral image analysis using deep learning—A review;
[9] Lu G., Fein B. Medical hyper spectral imaging:
[10] Wardlaw J.M., Sandercock P.A.G., Dennis M.S., Starr J. Is breakdown of the blood brain barrier responsible for lacunar stroke, leukoaraiosis, and dementia. Stroke.
[11] Plantone D., Renna R., Sbardella E., Koudriavtseva T. Concurrence of multiple sclerosis and brain tumors.
[12] Bahmanyar S., Montgomery S.M., Hillers J., Ekbom A., Olsson T. Cancer risk among patients with multiple sclerosis and their parents. Neurology.



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