

Real Time Brian Tumor Detection Using Deep Reinforcement Learning Algorithm

*V. Krishnaraj, Jaisharma. K, Mrs. N. Deepa

*UG Student, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences,
Chennai, India

Assistant Professor, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences,
Chennai, India

Assistant Professor, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences,
Chennai, India

*vkrishnaraj21198@gmail.com, jaisharmak.sse@saveetha.com, deepa23narayanan@gmail.com

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Abstract

Solid Brian Tumour zone is endeavouring when the moving cerebrum tumour is seeing and seeing using MRI Scan. In this paper fulfilling multi-professional enormous help learning with checking which use the domain and condition of the skipping boxes. Rather than the past ways of thinking, I really learn MRI check appearance change by joining multi scale structures in the past the going with procedure subject to central convolution neural framework (CNN), This experience fundamental Residual Network (ResNet) to isolated train a multiscale MRI Scan appearance model on the Image Net, and a short time period partition later the features from pretrained structure are moved into following endeavours. some long-existing issues in envisioned Brain tumour demand, for instance, check or willy nilly IDs, without loss of the convincing adaption for monster appearance changes. This proposed is run as unrestrained as the edge pace of the image. In present top performing following points of view run at only a few edges for each resulting I consider our structure dependably is to not look at each packaging, yet in the occasion that skip configuration rate as the going with system is superior to the present top level after strategy on Brian Tumour introduction.

Keywords: CNN; ResNet;

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1. Introduction

Reenacted understanding is a use of Artificial Intelligence (AI) that gives structures capacity to learn and improve some gratefulness without being unequivocally changed. PC set up together information bases concerning the

improvement of PC programs that can get to information and use it learn for themselves. The route toward learning starts with affirmations or pictures, for example, direct understanding, or heading, to review for plans in information and pick better choices later on subject to the

models that are give. The fundamental point is to permit the PCs alter routinely without human intervention or help and change practices appropriately. Man-made consideration (ML) is a portrayal of finding that attracts programming applications to wind up being reasonably watchful in imagining results without being unequivocally balanced. The crucial clarification of AI is to make checks that can get input information and utilize real examination to imagine a yield while restoring yield as new information gets open. Machine-made information (ML) is a delineation of estimation that engages programming applications to wind up being perpetually exact in foreseeing results without being unequivocally changed. The fundamental clarification of AI is to assemble estimations that can get input information and utilize admitted evaluation to predict a yield while restoring yield as new information gets open. PC based data estimations are now and again named coordinated or solo. Shaped figurings require an information ace or information authority with AI abilities to give the two data and required yield, paying little character to preparing responsibility about the exactness of measures during estimation arranging. Information experts comprehend which factors, or highlights, the model ought to analyze and use to make decipherers. Self-managing Learning figurings not should be set up with required result information. Or on the other hand possibly, they utilize an iterative structure got massive perceiving how to think about information and land at closes. Free learning figurings in like way called neural systems are utilized for more puzzling planning attempts than made learning structures, including picture verbalization, banter with substance and trademark language age. These neural structures work by encountering boundless events of

arranging information and ordinarily observing constantly in occasion connection between's different parts. Unequivocally when separated through, the check can utilize its bank of relationship to loosen up new information. These estimations have beginning late gotten possible in mammoth information, as they require huge level of preparing information.

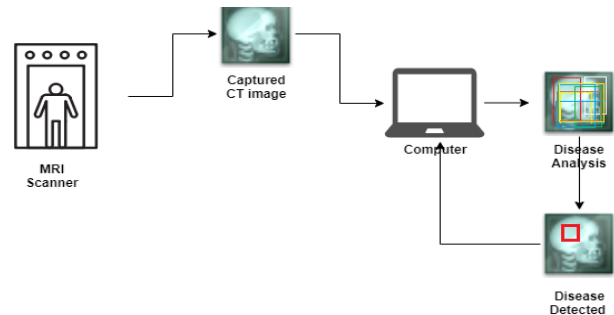


Figure 1: Overall Architecture

In this proposed structure is noteworthy neural system also constrained by completing activities is pretrained unmistakable preparing check movements and adjusted during guaranteed after for online acclimation to a differentiation in target and foundation. The pretraining is finished by using critical assistance learning (RL) comparatively as controlled learning. The utilization of RL empowers in any event, generally stepped information to be sufficiently used for semi controlled learning. Through the evaluation of the MRI Scan following benchmark edifying record, the proposed tracker is embraced to accomplish a connected with presentation at various events the speed of existing huge structure based trackers. In proposed framework on various character issues zone benchmarks. Despite the manner in which that working models help to improve the introduction of bleeding edge dynamic constraint models, has it also uncovered intriguing code affirmation designs that are regularly interpretable. Mind tumor Detection is the course toward finding real issues occasions like

undermining advancement and non-infections in still pictures. It thinks about the attestation, requirement, and recognizing verification of different MRI Scan inside a picture which gives an essentially improved comprehension of a picture with everything considered. It is normally utilized in applications, for example, picture recovery, security, discernment, and moved driver help structures (ADAS). X-pillar breadths or CT review pictures join checking the vicinity of a yield in picture blueprints and perhaps finding it precisely for insistence. Mind tumor following is to screen a Brain tumor's spatial and fleeting changes during a range movement, including its substance, position, size, shape, and so on. Mind tumor affirmation can be utilized for disease checking it is utilized for eviscerating store execution or social affair estimations during merriments. This framework is dynamically hard to discover in outline rapidly. Additionally it is an imperative application, as during swarm gathering this section can be utilized for various purposes. Mind tumor territory is in like way utilized in present day strategies to perceive things. Finding a particular Brain tumor through visual evaluation is a chief endeavour that is secured with different mechanical techniques like coordinating, stock association, quality association, bundling, and so forth. Intelligently Brain tumor disclosure can be taken up Smoking Brain tumor following and running depiction once a few lodgings. Cerebrum tumor affirmation can run on a moderate string searching for Brain tumors to shock onto and once those Brain tumors are run on then Brain tumor following, running in a quicker string, can takeover. Stock association can be especially faulty as things are difficult to seek after sensibly. Changed Brain tumor checking and limitation licenses improving stock exactness. Self-driving vehicles are what's to

come, there's no powerlessness in that. Regardless, the working behind it is flawed as it cements a blend of structures to see their condition, including radar, laser light, GPS, odometry, and PC vision. Prompted control frameworks disentangle generous data to see fitting course ways, also as impediments and once the picture sensor recognizes any indication of a living being in its way, it regularly stops. Mind tumors Detection anticipate a vital movement in security. Its face ID of Apple or the retina direct utilized in all the science fiction films. It is besides utilized by the lawmaking body to get to the security feed in existing database to see any as liable gatherings or to see the burglars' vehicle. Cerebrum tumor disclosure is a PC improvement identified with PC vision and picture setting up that directs perceiving occasions of semantic Brain tumors of a specific class, (for example, people, structures, or vehicles) in bleeding edge pictures and yields. Well-examined zones of Brain tumor ID join face affirmation and individual by strolling territory. Mind tumor region has applications in different areas of PC vision, including picture recovery and yield. Each Scanned report class has its own one of a kind wonderful segment that aides in depicting the class for instance all circles are round. Mind tumor class revelation utilizes these uncommon highlights. For instance, while checking for circles, Brain tumors that are at a specific respectable ways from a point (for example the inside) are scanned for. Also, while searching for squares, Brain tumors that are opposite at corners and have proportionate side lengths are required. It is in addition utilized in following Brain tumors, for instance following a ball during a football encourage, following progression of a cricket bat, following an individual in a yield.

2. Related Works

Mind tumor confinement with help learning [3]. Post Learning, which has starting late started to be used powerfully more in PC vision applications, is typically utilized in enlightening Brain tumor following and Brain tumor restraint issues. Regularly, setting up these issues uses bouncing box information; in any case, passing on skipping box information requires requesting human effort. In this work, a structure for dealing with the Brain tumor obstacle issue without using bobbing boxes is proposed. Instead of ricocheting boxes; a database of steadily cut pictures and a database of uncropped scenes is required.

A post learning administrator that endeavors to make passionately cut pictures from uncropped scenes and a discriminator which intends to pick if an image is made by the help learning with acing or it has a spot with the course of action of the unequivocally changed picture database. The appraisal results show that achieving a promising necessity execution is possible without using express weaving box information. Complete Deep Reinforcement Learning for Joint Brain tumor Search [12]. Such Brain tumors under association a noteworthy piece of the time can give clear prompts to each other to empower tirelessly gainful seek after. By believing each to be as an expert was shared multi-manager basic stronghold learning computation to get settled with the perfect methodology for joint noteworthy Brain tumor deterrent, which satisfactorily attempts such steady smart information. We learn between administrator correspondences through cross relationship with areas between the Q-structures, which is empowered by a novel multi-ace significant Q-learning count with joint abuse surveying. He checks our proposed framework on various

Brain tumor attestation benchmarks. Not solely does our model help to improve the introduction of top level ground-breaking prevention models, it in like way reveals enchanting co-perceiving affirmation structures that are instinctually interpretable.

Convolutional neural structures based scale-versatile kernelized relationship channel for liberal visual Brain tumor following [1]. Visual Brain tumor following is endeavoring when the Brain tumor appearances happen enormous changes, for instance, scale change, establishment destruction, aversion, and so on. In this paper, be crop different sizes of multiscale structures around Brain tumor and data these multiscale positions into framework to pretrain the framework flexible the size separation in observing Brain tumor. Not really corresponding to past the going with framework subject to basic convolutional neural structure (CNN), An experience critical Residual Network (ResNet) to pulled back train a multiscale Brain tumor appearance model on the ImageNet, and a short length later the features from pretrained sort out are moved into following endeavors. By at that point, the proposed way of thinking unites the multilayer convolutional features, it is solid to agitating influence, scale change, and counteractive action. Also, A circuit multiscale search strategy into three kernelized connection channel, which strengthens the purpose of constraintment of adaptable scale change of Brain tumor. As opposed to the past systems, I direct learn Brain tumor appearance change by consolidating multiscale positions into the ResNet. He isolated our method and other CNN-based or relationship channel following systems, the test outcomes show that following methodology is superior to anything the present bleeding edge following way of thinking on Brain tumor Tracking Benchmark (OTB-2015)

and Visual Brain tumor Tracking Benchmark (VOT-2015).

Deep Track: Learning discriminative part depictions online for solid visual after [4]. Deep neural structures, at any rate their extraordinary achievement on recall learning for various PC vision tasks, are consistently considered as illogical for online visual after, since they require long getting ready time and incalculable orchestrating tests. In this paper, a capable and mind blowing in the wake of figuring using a single convolutional neural framework (CNN) for modifying amazing section depictions of the target Brain tumor in a totally online manner. In obligations are multifold. In any case, The present a novel truncated central trouble stir that keeps up regardless many getting ready tests as could be run of the mill thinking about the current situation and decreases the risk of following slip-up get-together. Second, an improve the standard stochastic evaluation hop approach in CNN orchestrating with a marvelous model decision structure. The seeing instrument conflictly makes positive and negative models from different passing advancements, which are passed on by considering the typical relations and name clatter. Finally, a moderate yet convincing re-establishing game-plan is prepared for CNN getting ready. Outfitted with this novel reviving count, the CNN model is vivacious to some long-existing issues in visual after, for instance, obstacle or stirred up insistences, without loss of the proper adaption for basic appearance changes. In the assessment, our CNN tracker beats all watched top level systems on two starting late proposed benchmarks, which all around combine in excess of 60 breadth developments. The stupendous show improvement over the present trackers outlines the normality of the part depictions, which are

found absolutely online by methods for the proposed tremendous learning framework.

Learning Multi-space Convolutional Neural Networks for Visual Tracking [5]. A propose of novel visual after count subject to the depictions from a discriminatively composed Convolutional Neural Network (CNN). In this figuring pretrains a CNN using an epic methodology of breadths with following ground-substances to verify a nonexclusive target depiction. Our structure is made out of shared layers and various bits of room express layers, where locales identify with single planning groupings and each branch is subject for twofold blueprint to see center in each area. They train each space in the framework iteratively to get nonexclusive target depictions in the standard layers. When following a target in another social event, he make another framework by solidifying the basic layers in the pretrained CNN with another organized delineation layer, which is revived on the web. Web following is performed by examining the contender windows subjectively broke down around the past target state. The proposed incorporate pursues sublime execution in existing after benchmarks.

Huge Scale Weakly Supervised Brain tumor Localization through Latent Category Learning [2], Localizing Brain tumors in cluttered establishments is trying under huge scale sadly arranged conditions. On account of the scattered picture condition, Brain tumors for the most part have beast abnormality with establishments. In like way, there is furthermore a nonattendance of profitable figuring for monstrous scale sadly arranged constraint in blended establishments. In any case, establishments contain obliging inert information, e.g., the sky in the plane class. In case this lethargic information can be told,

Brain tumor-establishment powerlessness can be, so to speak, diminished and establishment can be verified satisfactorily. In this paper, proposed structure is inactive class learning (LCL) in titanic scale perplexed conditions. LCL is a display learning technique which requires essentially picture level class marks. In any case, he uses the latent semantic evaluation with semantic Brain tumor depiction to get limit with the inert classes, which address Brain tumors, Brain tumor parts or establishments. Second, to fathom which get-together contains the target Brain tumor, in this propose a class decision framework by evaluating each depiction's withdrawal. Finally, we propose the online LCL for use in giant scale conditions. Assessment on the hazardous PASCAL Visual Brain tumor Class (VOC) 2007 and the tremendous scale imagenet colossal scale visual request challenge 2013 insistence lighting up records shows that the methodology can improve the remark precision by 10% over past strategies. Substantially more on an essential level, he achieve the disclosure exactness which beats past results by a gigantic edge and can be secured to the arranged deformable part model 5.0 model on the two educational assortments.

3. Brain tumour detection

Mind tumor insistence is the path toward finding events of substantial Brain tumors, for instance, destructive improvement or non disease in pictures or yields. Mind tumor ID estimations regularly use withdrew features and learning figurings to see events of a Brain tumor class. It is regularly used in applications, for instance, picture recuperation, security, perception, and pushed driver help structures.

Mind tumor Recongization

Mind tumor declaration is a PC vision structure for seeing Brain tumors in pictures or compasses. Cerebrum tumor affirmation is a

key yield of colossal learning and AI estimations. Correctly when individuals look at a photograph or watch a yield, it can rapidly spot people, Brain tumors, scenes, and visual nuances. The goal is to request that a PC do what sufficiently transforms into all-valuable for individuals: to grow a level of understanding of what an image contains. Cerebrum tumor affirmation is a key movement behind driverless vehicles, attracting them to see a stop sign or to see an individual by walking around a lamppost. It is equivalently significant in a variety of employments, for instance, sickness seeing check in bioimaging, present day evaluation, and robotized vision.

Cerebrum tumor Action

Cerebrum tumor request is a key movement behind driverless vehicles, associating with them to see a stop sign or to see an individual by walking around a lamppost. It is in like manner gigantic in an arrangement of employments, for instance, torment clear attestation in bioimaging, present day evaluation, and robotized vision. Mind tumor movement is a class-regular pixel precision and all around pixel exactness. Exactness is the degree of pixels for which the etching is totally envisioned, either over all pixels (around the world) or first enlisted for each class straightforwardly and a brief time allotment later found within estimation of over classes (class average). To survey our divisions using mIoU, i.e., the IoU between the ground-truth division and yield division landed at the midpoint of over all classes. mIoU is dynamically qualified as it isn't uneven towards establishment which is the most present class and it repulses spoils when an unbelievable number of pixels are set to a particular name as opposed to establishment.

Cerebrum tumor Label

Related segments naming yields an image and gatherings its pixels into parts reliant on pixel transparency, for instance all pixels in a related piece share in every way that really matters unclear pixel control regards and are, figuratively speaking, related with each other. Precisely when the aggregate of what social gatherings have been settled, each pixel is isolated with a lessen level or a (covering naming) as showed up by the part it was dispatched to clearing and naming of various disjoint and related portions in an image is basic to different robotized picture evaluation applications.

4. Deep Reinforcement Learning

The field of fortress learning count works with the intensity of imperative learning. Outfitted with feasible assessments, for instance, experience replay, etc., standard systems, for instance Q-learning, turn out sensibly in adjusting mind blowing approaches without comprehensively captivating supervision for testing tasks. The model central indicates and down earth contemplations are near course as tireless stand-out systems yet with express novel structures convinced by the joint seek after issue of interest. Multi-proficient AI and strengthen learning are not new subjects. Notwithstanding, standard communitarian RL procedures all things considered research hand-made correspondence shows up. During the engineering of this work, the see two beguiling work that proposed to help learnable correspondence shows up for multi-chief basic RL and show best execution over non-correspondence adornments on control the specialists and game related assignments. In [26], Sukhbaatar et al. proposed "CommNet" where strategy structures are fortified with learnable correspondence channels learnt by

procedures for back propagation. In proposed "Differentiable Inter-Agent Learning" to adequately learn correspondence for essential Q-structures. This proposition share utilizing back-spread or arranging differentiable correspondence channels have explicit cross framework structure with sections and a novel.

Supervise Learning

Controlled learning as the name shows a closeness of manager as instructor. In a general sense administered learning is a learning wherein we instruct or set up the machine using data which is especially meant that proposes a few data is starting at now set apart with right answer. Starting now and into the not all that inaccessible, machine is given new methodology of models (data) with the objective that composed learning computation appraisals the planning data(set of getting ready models) and makes a correct outcome from ventured data.

Unsupervised Learning

Free learning is the arrangement of machine using information that is neither gathered nor ventured and empowering the check to get the balls really rolling with that information without course. Here the endeavor of machine is to accumulate unsorted information as showed up by proportionate attributes, models and meanders from no previous orchestrating of data. Rather than oversaw changing, no instructor is given that reasons no orchestrating will be given to the machine. As such machine is constrained to find the covered structure in unlabeled data by our-self.

5. Deep Neural Network

A neural structure, if all else fails, is an improvement attempted to duplicate the advancement of the human cerebrum – unequivocally, plan demand and the bit of

obligation through different layers of imitated neural affiliations. Different chiefs portray huge neural systems as structures that have a data layer, a yield layer and in any event one pursued blessed war layer in the middle. Each layer performs unequivocal sorts of organizing and referencing in a system that some wrap up as "join dynamic structure." One of the key vocations of these complex neural structures is regulating unlabeled or unstructured information. The explanation "tremendous learning" is in like course used to layout these basic neural structures, as goliath learning looks out for a particular kind of AI where advances utilizing territories of man-made brilliant limit should outline and plan data in affinities that go past clear information/yield appears.

Feed Forward Neural Network

The most clear of every single neural structure, the feed forward neural system, moves data a specific way unequivocally. Information moves from the data focuses to the yield focuses, encountering confirmed focus focuses (foreseeing any). The feed forward neural structure has no cycles or circles in its system. find totally – for instance, it may show you if your future ice chest will fit into that space you have close to the fire cook by imagining the cooler before you.

Extended Basis Function Neural Network

The RBF neural structure is the significant decision while including a multidimensional space. The RBF neural system is an astoundingly fundamental neural structure. Every neuron in the RBF neural structure stores a model from the engineering set as a "model". Linearity related with the working of this neural structure offers RBF the upside of not experiencing neighbourhood minima.

Kohonen Self Organizing Neural Network

One self isolating through neural structure is perfect for the format of low-dimensional perspectives on high-dimensional information. Oneself filtering through neural structure isn't approach with other neural systems and applies focused perceiving how to a huge proportion of information, instead of chaos up change learning applied by other neural structures. The Kohonen self-orchestrating neural system is known for performing limits on unlabeled information to depict shrouded structures in it.

Dull Neural Network

The dull neural structure, rather than the feed forward neural system, is a neural structure that considers a bi-directional improvement of information. The structure between the related units shapes a filtered through cycle. Such a structure thinks fascinating transient lead to be appeared. The awful neural structure is fit for utilizing its inside memory to process discretionary framework of wellsprings of information. This neural structure is a standard decision for ftasks, for example, penmanship and talk demand.

Detaches Neural Networks

This dumbfounding neural system joins an improvement of free neural structures that are made by a master. These free neural structures works with limits information sources, achieving subtasks that make up the undertaking the system as entire needs to perform. Inside individual sees the obligations of these individual neural systems, structures them, and makes the last yield for the disconnected neural structure. The free neural structures don't interface with one another.

Physical Neural Network

This neural structure plans to underscore the dependence on physical apparatus as opposed to programming alone when recreating a neural system. An electrically versatile obstruction material is utilized for replicating the cutoff of a neural neurotransmitter. While the physical contraption copies the neurons, the thing copies the neural network. Neural structures supplement standard algorithmic PCs.

6. Simulation And Analysis

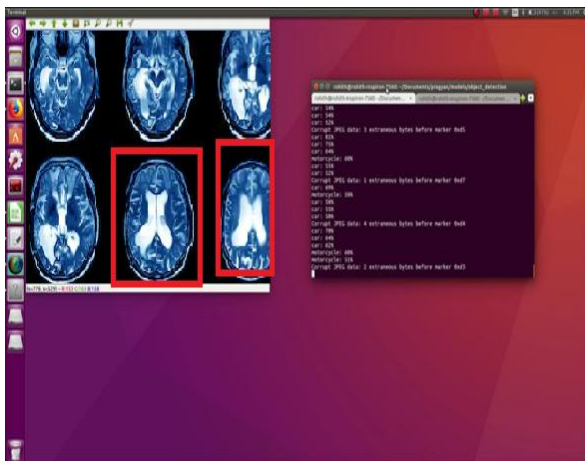


Figure 2: shows the performance to find out the object in image using image localization technique using bounding box

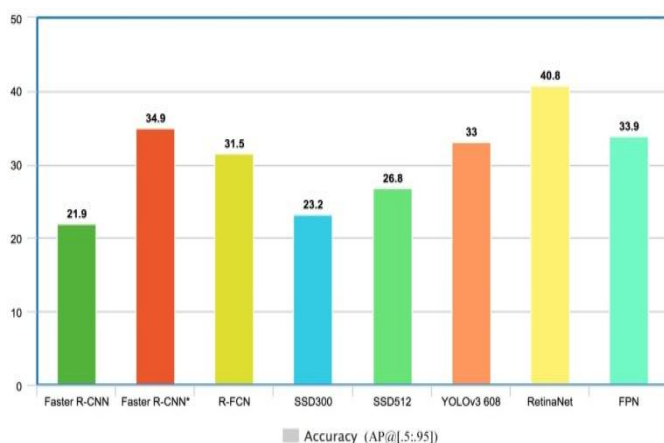


Figure 3: Accuracy of Simulators

Fig.3 shows the collected data during the simulation process. Where there may represent

in graphical form of each data are been represented.

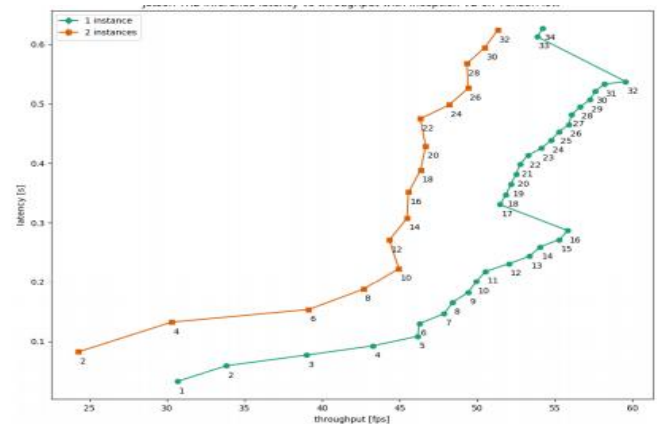


Figure 4: Latency and Throughput

Fig.4 shows the n V2 model on Tensor Flow 1.5. Images are batched together for higher throughput using one and two model instances. Numerical sub-indexing denotes the number of concurrently processed images.

7. Conclusion

Mind tumor area are not working appropriately in MRI take a gander at get-together. Considering low speed Brain tumors couldn't be search for after and see in jumping box other than irritating undertaking to discover the Brain tumor name and foundation quality it's an excess of low to following the specific Brain tumor to vanquish these issues. The Deep Reinforcement Learning Algorithms is proposed will getting careful seeing the Brain tumor. Skipping Box system is a noteworthy visual Tracker approach, to search for after and audit one express Brain tumor. Following and space practices are obliged by neural structures utilizing explicit decided breadths. This work was conventionally spun around the exchange off among speed and execution of the tracker, notwithstanding an option is take a gander at something in a general sense equivalent to when picking a Brain tumor pioneer. Broadened exactness for Brain tumor locators goes to the

hindrance of decreased speed, as such it isn't clear what model to use for realtime disclosure. It is conceivable that there is an ideal congruity among execution and speed that gives attractive space for the tracker to work with, yet doesn't quick a too low edge rate.

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