

College of Engineering and Technology

Project Work/Internship – Student Hand Book

Project Batch
ID. CT10B278

Degree/ program	B.Tech	Specialisation	Computer Science & Engineering
Academic Year	2023-2024 (Even)	Semester	8

Name of student	Register Number	Department	Mobile Number	Email ID
Jogeswar Panigrahi	RA201100301470	CINTEL	8260941054	Jp8116@srmist.edu.in
ANINDYA MANDAL	RA2011003010623	CINTEL	9477366390	am6872@srmist.edu.in

Working Title of the Project:	Brain Tumor Detection Using Machine Learning Techniques
Project Site / Location	SRM IST , SRM university
Name and address of the company / organisation (Applicable for projects with industry or industry support)	SRM IST, Kattankulathur, Chengalpattu District-603203

Supervision Team			
	Supervisor	Co-Supervisor	External Supervisor (If applicable)
Name	Muruganandham B		
Designation	Associate Professor		
Department	Computing Technologies		
Campus	Kattankulathur		
Telephone	9940023373		
E-mail	muruganb@srmist.edu.in		

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Course Code	18CSP109L/ 18CSP111L	Course Title	Brain Tumor Detection Using Machine Learning Techniques
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Mission Statement

Problem (or) Product Description:

Brain tumors are among the most dangerous and deadly forms of cancer. Early detection and accurate diagnosis are crucial to improving the prognosis of patients with brain tumors. However, brain tumors can be challenging to detect due to their non-specific symptoms, small size, and lack of imaging modalities specifically designed for detecting them. Machine learning techniques have shown promising results in the field of medical imaging. By leveraging advanced algorithms, these techniques can analyze medical images and accurately detect brain tumors.

Objective: The objective of this solution is to provide an accurate and efficient method for brain tumor detection using machine learning techniques.

Solution Description: This solution uses a combination of machine learning algorithms, including convolutional neural networks (CNNs) and support vector machines (SVMs), to accurately detect brain tumors from medical images. The solution includes a user-friendly web interface that allows users to upload images for analysis. The images are then preprocessed and converted into a format suitable for input to the machine learning models. The models are trained using a dataset of labeled brain images, with each image being classified as either containing a brain tumor or not. The performance of the models is evaluated using metrics such as accuracy, precision, recall, and F1-score. The best performing model is selected as the final brain tumor detection algorithm.

Advantages:

Accurate and efficient detection of brain tumors.

Easy-to-use web interface for uploading and analyzing images.

Seamless integration with existing medical imaging systems.

Real-time analysis of brain images, allowing for prompt diagnosis and treatment.

Limitations:

Requires a dataset of labeled brain images for model training.

The accuracy of the detection algorithm.

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Division of work and contributors

Time period		Activities or components of the project	Name/Register Number of the Individual Contributor	Names/Register Number of the Joint Contributors
From Date	To Date			
Nov 20, 2023	Feb 10, 2024	Dataset Collection	RA2011003010470 Jogeswar Panigrahi	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
Jan 15, 2024	Feb 16, 2024	Data Pre-processing	RA2011003010470 Jogeswar Panigrahi	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
Feb 21, 2024	March 10, 2024	Trend Prediction	RA2011003010470 Jogeswar Panigrahi	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
Jan 8, 2024	March 18, 2024	Image Gradient	RA2011003010470 Jogeswar Panigrahi	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
March 25, 2024	March 30, 2024	Representation of Cells	RA2011003010470 Jogeswar Panigrahi	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
March 1, 2024	April 2, 2024	Cross Validation	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
Feb 25, 2024	March 30, 2024	Re-Training, Testing	RA2011003010470 Jogeswar Panigrahi	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623

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March 2, 2024	April 10, 2024	Improving Model Accuracy, Prediction	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
April 12, 2024	April 15, 2024	Result Evaluation	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623
March 1, 2024	April 22, 2024	Documentation	ANINDYA MANDAL RA2011003010623	RA2011003010470 Jogeswar Panigrahi ANINDYA MANDAL RA2011003010623

Summary record of major progress meetings with supervisors

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Summary record of major progress meetings with supervisors			Working title of dissertation/research project:	
Meeting date & supervisors present	Progress since last meeting	Agreed programme of work and target dates	Other issues, e.g. facilities, supervision, training needs, etc.	Date of next meeting

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Worksheet / Data collection / Observation etc

How did you collect the dataset?

The dataset was collected from research papers and additional data were taken from Kaggle. All the data was gathered and organized for research purposes.

How did you do the pre-processing?

The fundamental process that facilitates both histogram grouping and normalization is the combination of cells into blocks. A block histogram can be defined as the result of normalizing these groups of cells. One significant benefit of computing histograms using image blocks is their ability to strengthen the image's resistance to local lighting variations, thus increasing its reliability in diverse lighting.

What did the dataset consist of?

Brain MRI Images. A private collection of T1, contrast-enhanced T1, and T2 magnetic resonance images separated by brain tumor type.


Images without any type of marking or patient identification, interpreted by radiologists and provided for study purposes.

The images are separated by astrocytoma, carcinoma, ependymoma, ganglioglioma, germinoma, glioblastoma, granuloma, medulloblastoma, meningioma, neurocytoma, oligodendroglioma, papilloma, schwannoma and tuberculoma.

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Journal Publication Details


15th ICCCNT 2024 (author)
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New Submission
Submission 907
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15th ICCCNT 2024 Submission 907

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The submission has been saved!

Submission 907

Title	Brain Tumor Detection Using ML Techniques
Paper:	 (Apr 09, 07:50 GMT)
Track	Image Processing
Author keywords	Brain Tumor detection Convolutional Neural Networks (CNNs) MRI Images
Abstract	This project, titled Brain Tumor Detection Using ML, employs a Convolutional Neural Network (CNN) to detect brain tumors in MRI images. Building upon this successful detection system, we propose to enhance patient care by integrating geolocation services. Upon tumor detection, users' latitude and longitude will be utilized to pinpoint their location. Leveraging this data, nearby doctors specializing in brain tumors will be identified, facilitating prompt medical attention. This integration of CNN-based diagnosis with geolocation services streamlines the process of accessing specialized healthcare, potentially improving patient outcomes and overall healthcare efficiency.
Submitted	Apr 09, 07:50 GMT
Last update	

Authors						
first name	last name	email	country	affiliation	Web page	corresponding?
Jogeswar	Panigrahi	jp8116@srmist.edu.in	India	SRM		✓
Anindya	Mandal	am6872@srmist.edu.in	India	SRM		✓
Dr. Muruganandham	B	jogeshwarpanigrahi@gmail.com	India	SRM		✓

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15th ICCCNT 2024 submission 907 External
1 of 3,380

15th ICCCNT 2024 <15thiccnct2024@easychair.org>
to me
1:20 PM (15 minutes ago)

Dear authors,

We received your submission to 15th ICCCNT 2024 (15th International IEEE Conference on Computing Communication and Networking Technologies):

Authors : Jogeswar Panigrahi, Anindya Mandal and Dr. Muruganandham B
Title : Brain Tumor Detection Using ML Techniques
Number : 907
Track : Image Processing

The submission was uploaded by Jogeswar Panigrahi
<jp8116@srmist.edu.in>. You can access it via the 15th ICCCNT 2024 EasyChair Web page

<https://easychair.org/conferences/?conf=15thiccnct2024>

Thank you for submitting to 15th ICCCNT 2024.

Best regards,
EasyChair for 15th ICCCNT 2024.

Reply
Forward

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