



# Analysis of digital markers from MRI images using Deep Learning

Northumbria University, Newcastle

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Project Brief



Research and Main  
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Progress and  
Current Position



Delivery Dates

# TEAM-MRI NU CIS

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Naresh Nalluri      Role: Communication Lead      Course: Advanced Computer Science with Advanced  
Practice      Experience:

Rajesh Chittimalla      Role: Team Member      Course: Computer Science with Advanced  
Practice      Experience: Graduated from Vagdevi Engineering College,India

Venkat Sai Meruva      Role: Team Member      Course: Advanced Computer Science with Advanced  
Practice      Experience: Infinity Solutions(IT-Staffing, JuniorAssociate, 1 year)

Nikitha Thokkala      Role: Team Member      Course: Advanced Computer Science with Advanced  
Practice      Experience:



# Project Brief



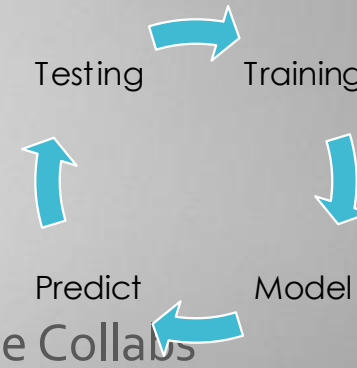
# Project Title

## Analysis of digital markers from MRI images using Deep Learning.

- Outline:

- 1) To predict whether tumor is present in human brain or not.
- 2) To apply all the State of the arts models on MRI images Classification and modify hyperparameters.
- 3) Develop a webapp application for MRI digital markers.

### Deliverables



Coding Platform : Google Collab

Academic Supervisor : Ossama Alshabrawy



- NEURAL NETWORKS( WOL PERT,D.H.(1992))
- MACHINE LEARNING(THE ARTS AND SCIENCE ALGORITHMS THAT MAKES SENSE OF DATA ( PETER FLACH ))
- CLASSIFICATION ( PETER A. FLACH )
- LEARNING IN NEURAL NETWORK ( STUART J.RUSSEL)
- BRAIN TUMOR CLASSIFICATION(KAGGALE)

# Objectives

- Learn about Artificial Neural Network and Convolutional Neural Network.
- Implement basic CNN (Convolution Neural Network) architecture using TensorFlow.
- Implement state-of-the-art models using TensorFlow.
- Hyper tune high-performing models.
- Develop web application.

# Project Plan

### Detection of brain tumor using a CNN-powered web application

CONTEXT

Magnetic resonance imaging (MRI) uses strong magnetic fields and radio waves to capture detailed images of the inside of the human body. Among other things, detection of brain tumors can be done using MRI scans of the brain. In many remote places, due to the lack of specialist doctors, a patient may be unable to detect a tumor despite having access to MRI scanning technologies. This project aims to develop a web application that would allow a patient to obtain results on the presence or absence of tumor, and on the presence, the type of tumor, using a web application wherein the patient could upload the MRI scan image and obtain the result.

AIM

Create a web-based application that allows an end user to upload an image of MRI scan of the brain of a person and obtain as result the output on whether the person has brain tumor, and if so, the type of tumor.

OBJECTIVES

1. Learn about Artificial Neural Network and Convolutional Neural Network: Formulate a theoretical understanding of Artificial Neural Network and its modification - Convolution Neural Network - for image classification.
2. Implement basic CNN (Convolution Neural Network) architecture using TensorFlow. Use the TensorFlow library using Python on the Google Colabstory platform using GPU to design, train and test a basic CNN model.
3. Implement state-of-the-art models using TensorFlow: Use pre-defined state-of-the-art models after modifying for our application to train and test for our dataset.

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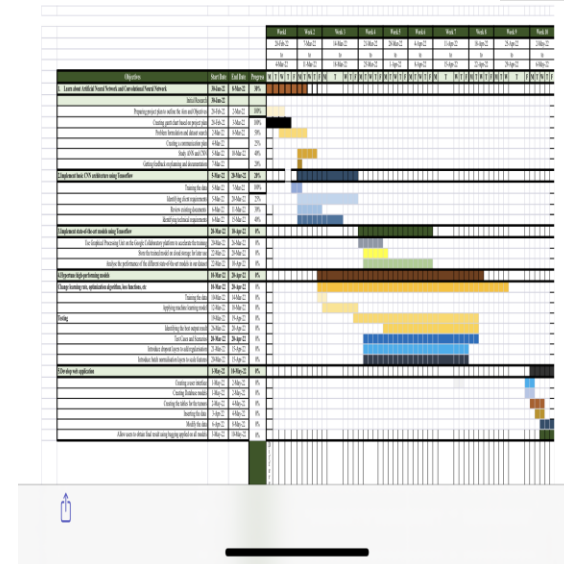
☒ Spell Check

☐ Compatibility Mode

Preparing project charter to outline the project

# Communication Plan

COMMUNICATION PLAN					
Client	Ossama <u>Alshabraway</u>	Academic Supervisor	Ossama <u>Alshabraway</u>	Project team	Saiteja Gaje Naresh Nalluri Venkat Meruva Rajesh Chittimalla <u>Nithitha Thokkala</u>
client	Petia <u>sice</u>	Project Supervisors	Anne Macdonald John Arthur Andrew Edden		
Summary		The project aims to classify the MRI images and extract digital markers for disease onset. This will require pre-processing of the images before building the machine learning/deep learning model. This model should predict the disease onset and classify different stages of the disease.			



Gantt chart





Gathering  
Data



Choosing a  
model



Training data



Hyper tuning  
the model



Designing  
webpage

# Identifying Client and User Requirements

# Coding –Under progress

- Development progress started with Google collabs
- Chosen Brain tumor classification(data set)
- Taring
- Testing
- Predicting

Click to add text

# Designing Database

- Create a web application using Tensorflow.js or Django with TensorFlow.
- Allow user to obtain result from all available models
- Allow users to obtain result using bagging applied on all mod

# Key Milestones

- Need to finish the python coding according to the requirement by the April First week
- Need to develop the webpage by the end of the April
- Need to Apply TensorFlow saved models of the trained state-of-the-art CNN models.
- Need to TensorFlow saved models of the tuned CNN models



## Any Questions

- Is they achieved user requirements or not?
- All the State of art of models performed and Hyper tuned or not?



THANKYOU