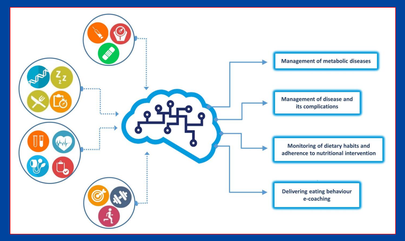


# Detection of Brain Diseases Using Imaging and Artificial Intelligence

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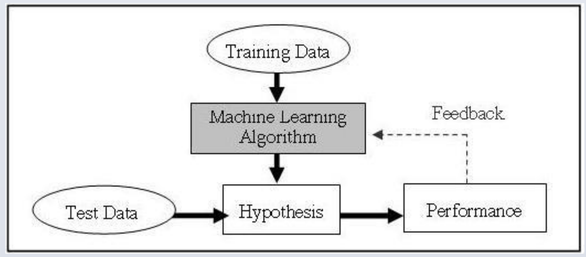
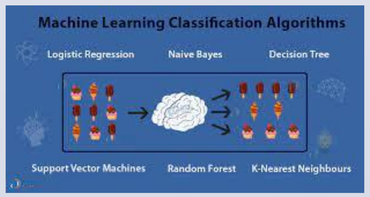
## INTRODUCTION

Annually, brain cancer is among the leading causes of death in the United States and worldwide. Detecting and diagnosing cancer early and accurately is very important for bettering patient health outcomes and lowering mortality rates.

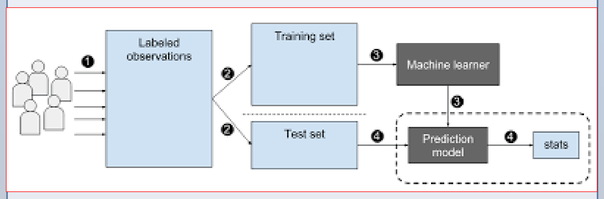




Currently, artificial intelligence and machine learning models are applied for diagnosis and prognosis of various diseases.

In this research, a machine learning model built using artificial intelligence based on neural networks and clinical patient data is used to help medical professionals in the diagnosis of cancers and enhancement of treatment outcomes for patients.

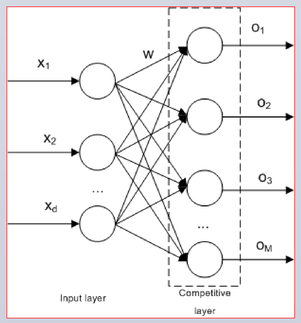
## METHODS

Developed with machine learning algorithms, the model was developed using imaging for cancer diagnoses.



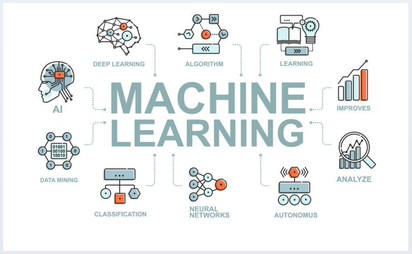

Clinical data, including over 970 patients from medical institutions, was utilized to develop, train, and test the machine learning model.

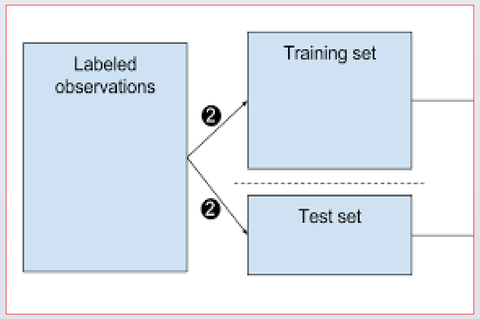
To train its capabilities as a machine learning model, 58% of the patient data was used. For diagnosis of the testing datasets, the other 42% of the patient data was utilized.




## RESULTS

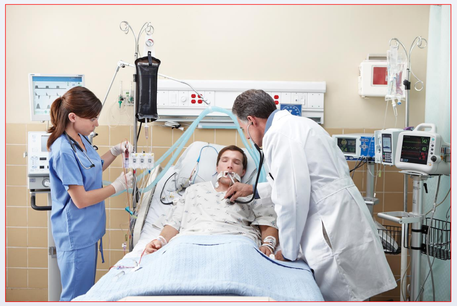
In diagnosing cancers in patients, the machine learning model was able to achieve an overall diagnostic accuracy of 88.2%.



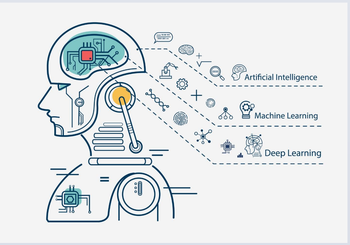




Therefore, diagnosing cancer tumors early and accurately with the application of artificial intelligence in imaging can be a helpful tool for medical professionals in improving patient health outcomes, especially in resource limited areas of society.

## CONCLUSIONS



Especially in locations with fewer medical specialists, the AI model is a cost-effective alternative option for early and accurate brain disease diagnosis. Thus, diagnosing tumors with the aid of radiologic imaging and neural networks can improve outcomes for overall patient health in society.

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