Batch No	**B11**
Project Title	**AUTISM DETECTION BASED ON FACIAL IMAGES USING VGG16 AND VGG19**

ABSTRACT

A mental disability called autism spectrum disorder exhibits specific difficulties with verbal and nonverbal communication, interpersonal skills, and obsessive activities. Around 1% of the total populace is impacted by it, and its side effects frequently show up during the formative stages, or during the initial two years following birth. Autism can be diagnosed at any stage in once life and is said to be a "behavioral disease" because in the first two years of life symptoms usually appear. There hasn't been a strong diagnosis method, though, because there aren't any discernible variations between the facial images of healthy people and those of people with ASD. Machine learning, and Deep learning approaches are being used in conjunction with traditional diagnostic procedures to increase the accuracy and turnaround time for diagnoses.

In this study, we are looking to build a deep learning model i.e A Convolution Neural Network that can classify and detect Autism based on facial images. The algorithm involves several key steps, including data collection, pre-processing, model training, and evaluation. This project explores the potential of using deep learning models, specifically VGG16 and VGG19 convolution neural networks (CNNs), for the detection of ASD based on facial images.

Keywords: Autism, ASD, Machine learning, Deep learning, CNN, VGG16, VGG19

Guide
Mrs. K. ANITHA
(ASSISTANT PROFESSOR)

Team Members
PUPPALA NIKHITHA (208T1A05A7)
MANTADA HARSHITHA (208T1A0578)
UDDANTI VARSHITH (208T1A05B9)
PONNADA SRI RAM JAGADISH (208T1A05A4)
PUSHYA DHANEKULA (208T1A05A9)

Software Requirements:

Ni learn:

Ni learn makes it easy to use many advanced machines learning, pattern recognition and multivariate statistical techniques on neuroimaging data for applications such as MVPA (MultiVoxel Pattern Analysis), decoding, predictive modelling, functional connectivity, brain parcellations, connectomes.

NumPy:

NumPy is the fundamental package for scientific computing in Python.

SciPy:

SciPy in Python is an open-source library used for solving mathematical, scientific, engineering, and technical problems.

Pillow:

Some of the most common image processing libraries are: OpenCV, Python Imaging Library (PIL), Scikit-image, Pillow.

Cython:

Cython is an optimizing static compiler for both the Python programming language and the extended Cython programming language (based on Pyrex).

Matplotlib:

Matplotlib is a plotting library for the Python programming language and its numerical mathematics extension NumPy.

Scikit-learn:

The sklearn library contains a lot of efficient tools for machine learning and statistical modelling including classification, regression, clustering and dimensionality reduction.

Keras 2.0.8:

Keras is a powerful and easy-to-use free open-source Python library for developing and evaluating deep learning models.

OpenCV-python:

OpenCV-Python is a library of Python bindings designed to solve computer vision problems.

TensorFlow:

TensorFlow is an end-to-end open-source platform for machine learning.

Hardware Requirements:

Processor - Intel(R) Core (TM) i7-9750H CPU @ 2.60GHz 2.59 GHz
RAM – 8 GB or above
GPU – NVIDIA GeForce GTX 1080 Ti Graphics Card