

Computational Thinking with Python

(19CS201)

**COVID-19 Detection Using Convolutional Neural Networks**

(Synopsis)

**Team Members**:

**Belsare Yash Rahul (ENG19CS0062)**

**Bhavana (ENG19CS0066)**

**Harshal Goyal (ENG19CS0114)**

**Harshita Chaurasia (ENG19CS0115)**

**Faculty Advisor:**

**Dr. Gudla Balakrishna**

**Objective:**

To develop a Deep Learning based neural network model capable of distinguishing between healthy and COVID-19 positive patients using Chest X-ray data.

**Intro:**

In current scenario the swab is used to test for presence of COVID-19 in a person but that takes large amount of time .Our objective is to develop a **convolutional neural network based Deep Learning** model to differentiate the **COVID-19 positive** patients from the healthy patients by analyzing the **Chest X-ray data** of the patients .This will help to ease the condition in the current scenario.

**Operational Definition:**

The classification of patients as **COVID positive** or **Healthy** is done by a **trained** **deep convolutional neural network** which takes patient’s chest X ray as input. The **deep CNN model** is written in **python** using **TensorFlow, Keras and OpenCV** opensource libraries**.** The **deep CNN** model is trained on the opensource **Kaggle** dataset **“Coronahack-Chest-XRay-Dataset”.**

**Resources used:**

**Python**

Base programming language used for creating the Deep Learning model.

**TensorFlow, Keras, OpenCV**

Open source Machine and Deep learning libraries for creating a NN (Neural Network) and for computer vision.

**Numpy and Matplotlib**

Open source libraries for mathematical calculations and visualization of data.

**Covid-19 Chest X-ray Radiology Dataset**

A Kaggle dataset of Chest X-ray images of corona and healthy patients used for training the model.