* **Research Title**

**“A NEURAL NETWORK ARCHITECTURE FOR CLASSIFICATION AND DIAGNOSIS OF DIGITAL CHEST RADIOGRAPHS”**

* **Research Objectives:**

*Objective 1: To design and implement a generic neural network architecture for efficient image segmentation.*

*Objective 2: To propose a neural network architecture that classifies segmented medical images to identify abnormalities on the segmented images.*

*Objective 3: To tweak the proposed neural network architecture to address medical problems reliably and accurately and to localize the presence of abnormality.*

* **Problem Statement**

In this system, we structure, analyze and train Deep Convolutional Neural Networks with layer-wise tuning on Medical Images which increases the effectiveness of the classification and diagnosis of Digital Chest Radiographs.

* **Abstract**

The medical imaging procedures performed are increasing several times faster than the number of Radiologists who can interpret them. Each scan is now much more involved and information-rich than is used to be in the past. Various machine learning models have been deployed on the deep learning algorithms to accurately detect and highlight abnormalities, reducing the chances of missing diagnosis.

Existing classification techniques such as Support Vector Machine (SVM) and Random Forest (RF), Multilayer Perceptron (MLP) and logistic regression (LR) models haven't been very much significant on classification when compared with Deep learning.

Deep learning algorithms, in particular, convolutional networks, have rapidly become an of choice go-to for classification of imaging data. Deep convolutional neural networks could be more efficient to attain the higher level of classification accuracy on Medical Imaging data.

Deploying Deep Convolutional Neural networks (CNN) while using suitable layers for medical imaging expands the view for better insights and thereby increasing accuracy in the process of diagnosis.

In this system, we structure, analyze and train Deep Convolutional Neural Networks with layer-wise tuning on Medical Images which increases the effectiveness of the classification and diagnosis of Digital Chest Radiographs. Adding the right layers to the network would create a more significant change in computation and production of an analysis that corresponds to the data.

The design architecture of convolutional neural network would be validated with a robust data set of medical imaging of various patients while tuning layers to offer a practical way to reach maximum and efficient performance for classification of DICOM data.

We conclude with a summary of the bringing state-of-the-art, classification and design of Convolutional Neural networks for analysis of Medical Images.