



**Ahsanullah University of Science and Technology (AUST)**

**Department of Computer Science and Engineering**

**Project Proposal**

**Course No.: CSE4238**

**Course Title: Soft Computing Lab**

**Submitted To- Mr Md. Reasad Zaman Chowdhury &**

**Mr Mohammad Marufur Rahman**

**Submitted By-**

**Md. Muhaiminul Kabir (190204063)**

**Nishi Kanta Paul (190204072)**

**Md Shihabul Islam Shovo (190204075)**

**Kazi Atiqur Rahman (19020486)**

**Year- 4<sup>th</sup>**

**Semester- 2<sup>nd</sup>**

**Session: Spring'23**

# “Comparative analysis of Neural Network Model in the Classification of Pulmonary Diseases”

## **Objective:**

This paper aims to compare different computer programs that act like brains (neural network models) to see which one is best at sorting and categorizing lung illnesses. We want to figure out which model is most accurate in telling apart different types of lung diseases. This information could help doctors and scientists better understand and treat these diseases.

## **Tentative method:**

1. **Dataset:** We will combine two datasets of chest X-rays from Kaggle to introduce various kinds of pulmonary diseases for this project. The first dataset, the "COVID-19 Radiography Database," is chosen for analysis. The second dataset, "Chest X-ray Images," with specified characteristics, is also included in our study.

2. **Model to evaluate :**

We will evaluate Different neural network models with different combinations of hyperparameters , hidden layers and Activation functions to classify categories of lung illness.

3. **Evaluation metrics:**

Evaluation metrics are tools to measure how good a model is. We'll use three types:

- **Classification Accuracy:** It checks how many predictions are right out of all predictions, giving a percentage of correctness.
- **Loss Function:** This is a penalty for wrong predictions. Our aim is to minimize this penalty to get the best results.
- **Confusion Matrix:** It's a chart showing how many predictions are true or false, helping us evaluate the system's performance. We'll use all three metrics for each experiment.