Project Update & Plan

Topic: Classification of respiratory diseases using machine learning

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What was the idea:

The idea is to create a model to classify respiratory diseases from breathing sound by using machine learning.

How much you completed in 499A:

- We reviewed a lot of ML research papers related to respiratory diseases.
- We learnt basic structure of writing research papers, Convolutional Neural Network (CNN) and dived deep into ML basics and Python programming.
- We used the Respiratory Sound Dataset from the ICBHI 2017 database.
- From the above dataset, we converted the audio file to a visual image. We achieved that by converting audio files (.wav format) to a digital spectrogram and MFCC (mel-frequency cepstrum coefficient).

What do you want to do in 499B:

- We want to preprocess the data further to make it suitable for sending to the CNN model.
- We want to build the CNN model for accurate prediction
- We also plan on broadening the dataset to dive deep into the causes and hope for better findings.

How do you want to do it:

- By creating CNN model and using Keras + Tensorflow backend
- Training the model
- Testing on unseen data and calculating accuracy

Give a timeline:

We hope to finish the entire work within December 2021.

GIT link:

https://github.com/mirafrinayon/CSE499-Research_Paper-ML.git

Conclusion:

- We hope our model will be able to serve the medically underserved population.
- Areas where there is lack of skilled medical staff , a sound classification using our model can provide immediate diagnostic reports.