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| Sl. No | Citation | Methodology | Dataset | Result | Merits and Demerits |
| 1. | GraphCovidNet: A graphical neural network based model for detecting Covid19 from CT scans and X-rays of chest  **Pritam Saha,**  **Debadyuti Mukherjee,Pawan Kumar Singh,**  **Ali Ahmadian, Massimiliano Ferrara, Ram Sarkar** | This proposes a graph isomorphic network based model to detect COVID19 from CT scans. It accepts data only in the form of graphs.  **Pre-processing of data:**   1. The edges of raw images are detected using Prewitt filter because it is easy to implement and detect edges efficiently, followed by gradient evaluation. 2. Each image is converted into graph by following some rules.   **Architecture:**   1. It uses a GINConv layer which uses MLP. 2. In MLP, there is a linear layer followed by a ReLU and another linear layer. 3. After GINConv layer these is a ReLU activation function followed by a dropout layer of 0.5 and then normalization layer. 4. Then there are two new blocks like the one described from step 1 to 3 except the third block has a mean pooling layer instead of normalization layer. 5. These are followed by a linear layer, dropout layer of 0.5 and a linear layer. The last linear layer has dimension equal to the number of classes in the problem. 6. At last, Log Softmax activation function has been used for the final probability values. | The following four datasets are used here:   1. SARS-COV-2 Ct-Scan Dataset ([link](https://www.kaggle.com/plameneduardo/sarscov2-ctscan-dataset))   **Positive**: 1252  **Negative**:  1230   1. COVID-CT Dataset ([link](https://github.com/UCSD-AI4H/COVID-CT)) 2. Combination of below two datasets:   Covid-chest xray-dataset ([link](https://github.com/ieee8023/covid-chestxray-dataset))  and chest xray images dataset ([link](https://www.kaggle.com/paultimothymooney/chest-xray-pneumonia))   1. CMSC-678-ML-Project Dataset ([link](https://github.com/vj2050/Transfer-Learning-COVID-19)) | The results are discussed below:   1. **SARS-COV-2 Ct-Scan Dataset**:   Accuracy:100  Precision: 100  Recall: 100  F1 Score: 100   1. **COVID-CT Dataset**:   Accuracy:100  Precision: 100  Recall: 100  F1 Score: 100   1. **Combination of two dataset as described in 3** :   Accuracy: 99.84  Precision: 99.84  Recall: 99.84  F1 Score: 99.84   1. **CMSC-678-ML-Project Dataset**:   **3 class**:  Accuracy: 99.11  Precision: 99.11  Recall: 99.11  F1 Score: 99.11  **4 class**:  Accuracy: 99  Precision: 99  Recall: 99  F1 Score: 99 | **Merits:**   * For edge detection it uses Prewitt filter. So, it utilizes the memory than the traditional CNN approach. * This approach can easily tackle problems like overfitting, class imbalance, etc. * It has a very high prediction accuracy (around 100%) * It has outperformed past models in terms of recall, precision, f1 score and accuracy   **Demerits:**   * GIN assumes that the MLP and the sum of embedding function will be injective function. If it does not hold, then GIN will not work. |