

Utilizing Federated Learning for Accurate Prediction of COVID-19 from CT Scan Images

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Abstract : Recently, the COVID-19 outbreak has spread across the world, leading the World Health Organization to classify it as a global pandemic. To save the patient's life, the COVID-19 symptoms have to be identified. But using an AI (Artificial Intelligence) model to identify COVID-19 symptoms within the allotted time was challenging. The RT-PCR test was found to be inadequate in determining the COVID status of a patient. To determine if the patient has COVID-19 or not, a Computed Tomography Scan (CT scan) of patient is a better alternative. It will be challenging to compile and store all the data from various hospitals on the server, though. Federated learning, therefore, aids in resolving this problem. Certain deep learning models help to classify Covid-19. This paper will have detailed work of certain deep learning models like VGG19, ResNet50, MobileNetv2, and Deep Learning Aggregation (DLA) along with maintaining privacy with encryption.

Keywords : federated learning, COVID-19, CT-scan, homomorphic encryption, ResNet50, VGG-19, MobileNetv2, DLA

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