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# Deep Learning Based Pulmonary Embolism Detection Using Covert Communication Over Federated Learning Channel

**Vidhu W S[1], Dona Shaju[2], and Jijina N[3]**
M-Tech Student, ECE Department, College of Engineering, Trivandrum, Kerala[1,2]
Assistant Professor, ECE Department, College of Engineering, Trivandrum, Kerala[3]

**Abstract:** *Pulmonary Embolism is a severe condition that caused due to the blood clots that forms in the blood vessel and it travels to the artery in the lung then suddenly forms a blockage in to the artery.So it requires timely and accurate diagnosis methods. There is already some existing techniques are there such as CTPA, D-dimer test etc. But these techniques has its own disadvantages are there it's does not detect accurately, more time consuming, data privacy concerns and it requires human intervention (radiologist) and so many disadvantages are there for the currently existing techniques. FL makes it possible to train collaborative models without directly exchanging sensitive patient data by protecting data privacy [1]. The primary result of Deep learning based pulmonary embolism detection is the detection of pulmonary embolism as early as possible. So we build a centralized model and evaluate it's accuracy, sensitivity, specificity and the computational efficiency.The federated model will preserving the patients data privacy and it achieves high accuracy and AUC-ROC scores that indicates its capability to generalize across the different institutions.Overall Federated learning model proves that it is a viable and scalable approach for the collaborative medical AI, balance the accuracy , security and the real world deployment feasibility.*

**Keywords**: Pulmonary Embolism.

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