PH.D – RESEARCH PROPOSAL

DEEP LEARNING MODEL FOR BETTER DIAGNOSIS OF MEDICAL IMAGES

ABSTRACT:

While artificial intelligence (AI) has been largely successful in helping radiologists do computer-aided patient diagnosis, developing high-quality models at individual site from small datasets continues to be a challenge. Radiologists have to perform lengthy labelling tasks and prepare the dataset for training since a large number of medical images lack the necessary labeling for training. Considering all of the medical images that are taken every year, it is not feasible to continue throwing such demands on radiologists. The main goal is to improve medical imaging diagnostic accuracy by utilizing artificial intelligence, specifically deep learning methods like convolutional neural networks. Distributed learning, a collaborative technique that enables individual sites to train a global model without explicitly sharing datasets, so respecting patient privacy, is a solution to the problem of insufficient labeled datasets for training AI models in medical imaging. For AI solutions in medical imaging to be successfully implemented, federated learning provides scalability, flexible training scheduling, and access to huge training datasets through multi-site collaborations. The ultimate goal is to generate highly accurate and consistent output without the need for conventional image-processing algorithms by improving the detection and diagnosis of abnormal diseases on medical pictures. The aim of this project is to advance medical imaging using creative AI solutions by solving issues like the growing amount of medical images and the scarcity of labeled datasets.