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(57) Abstract :
[038] The present invention discloses a system for ensemble learning with Convolution Neural Network for automatic identification of implant manufacturer using X-ray radiographs. In the present invention, an ensemble model for automatic implant manufacturer prediction using X-ray radiography. Our model employs multiple convolutional neural networks to achieve a reliable prediction of the implant manufacturer based on x-ray images. The individual CNN varients involved in the implant prediction were trained separately to make independent predictions and then combined using a weighted average ensembling method to predict the manufacturer of the implant. We trained the individual pre-trained model for 150 epochs using the training set and validated the model using the validation set. The performance of the pretrained models were monitored and evaluated based on model accuracy, precision, recall and F1 score. The ensemble model has shown promising performance in terms of the aforementioned evaluation metrics, thus we believe that the model will be a useful tool in preoperative planning and can be applied in the identification and classification of implants from other manufacturers. Accompanied Drawing [FIGS. 1-2]

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