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March 2022 · 39(5)

DOI: [10.1111/coin.12505](https://doi.org/10.1111/coin.12505)

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Abstract

Cardiac amyloidosis is an uncommon disease that has been known for a long time. Moreover, modern advancement in noninvasive imaging of heart via ultrasound, magnetic resonance imaging has enhanced the detection of secret cardiac amyloidosis in patients identified with the heart disease. This article focused on detecting the heart disease especially cardiac amyloidosis on electro cardio gram images using recent technology of both machine learning and deep learning approaches. In addition, apart from detecting the disease on images, we are categorizing the heart images as normal and cardiac amyloidosis if any deviations occur. For CA disease identification along with its classification, 300 cardiac images have taken and those images are analyzed using machine learning algorithms namely nearest centroid, gradient boosting and random forest. Several metrics such as precision, recall, f-score, sensitivity, accuracy, and confusion matrix based on binary classification which classifies the images into positive (CA) and negative (non-CA) are estimated. Among these approaches, gradient boosting method achieves 95% accuracy as better outcomes which measure the model performance in detecting cardiac amyloidosis disease as well as ECG images are categorized into either normal or abnormal via classification metrics. Furthermore, we applied deep learning based neural network "DeepNet" model is applied on augmented data along with CNN which attains 93% accuracy in CA disease identification.

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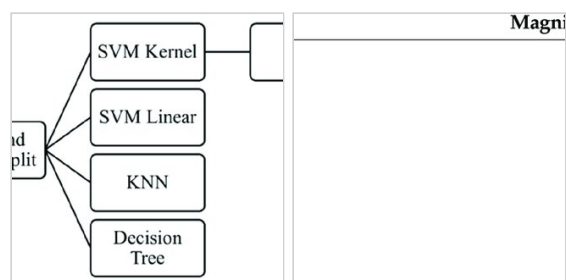
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