

# **Atrial Fibrillation beat classification based on fibrillatory waves and Heart Rate Variability features by developing Decision Tree model**

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# Introduction

- The most critical clinical ECG feature to diagnose Atrial Fibrillation (AFIB) is the presence of fibrillatory waves (F-waves).
- The F-waves present in the AFIB ECG signal divulge the patient's clinical information.
- The classification of AFIB ECG signals based on F-waves presence is rare.
- Aim is to classify AFIB ECG signals based on F-waves and Heart Rate Variability (HRV) features by developing a Decision Tree (DT) model.

# Methods

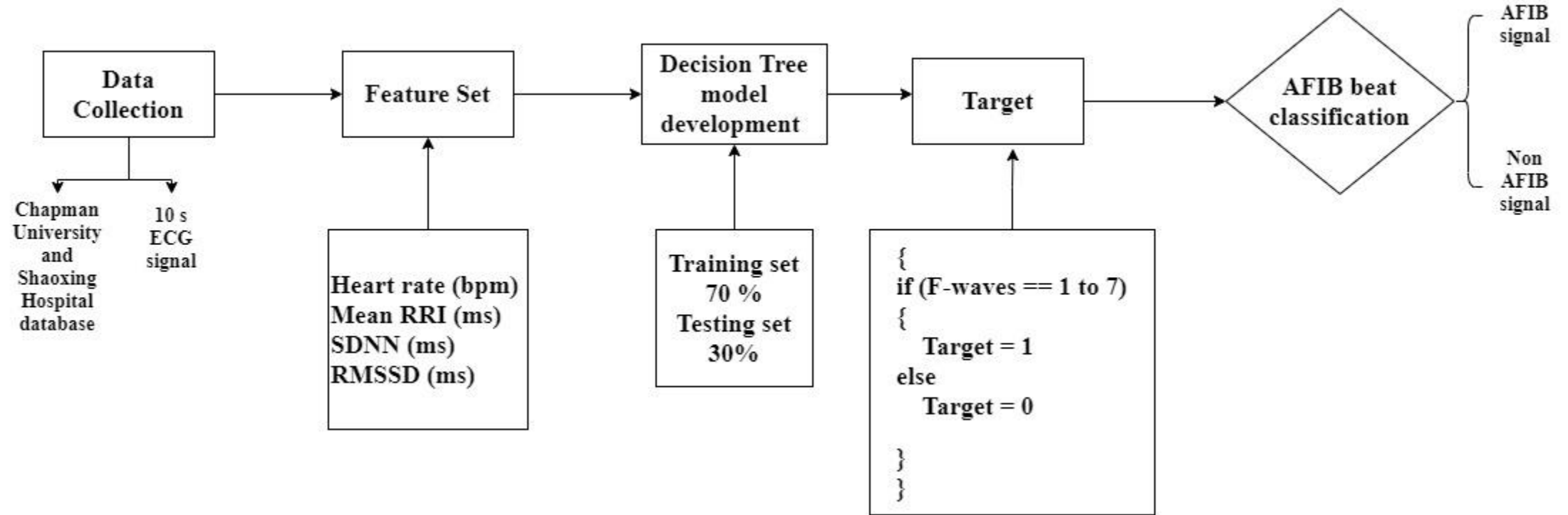


Fig. 1. Block diagram of the proposed work

# Results

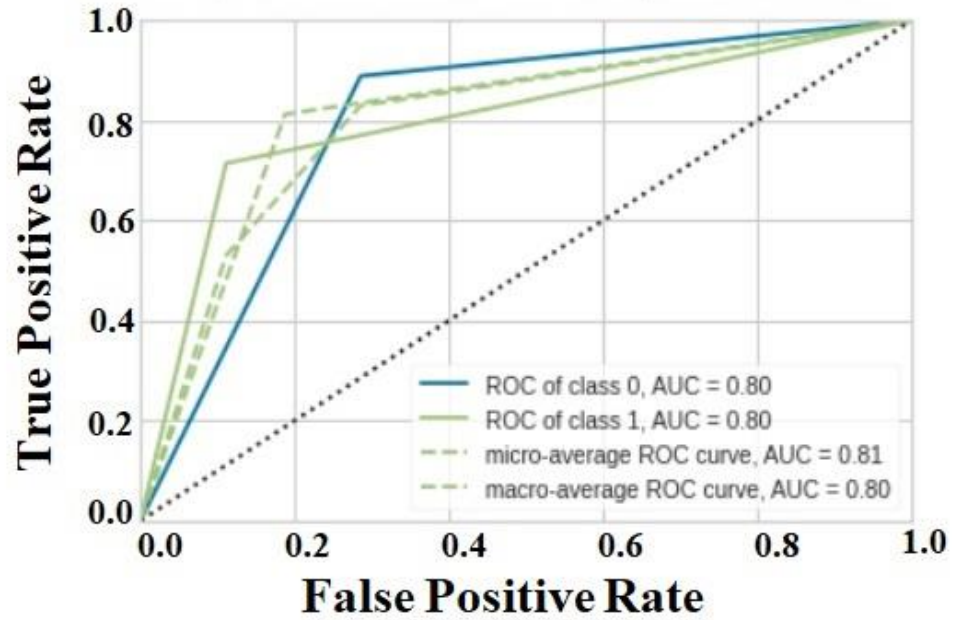


Fig. 2. ROC Curve of Decision Tree classifier

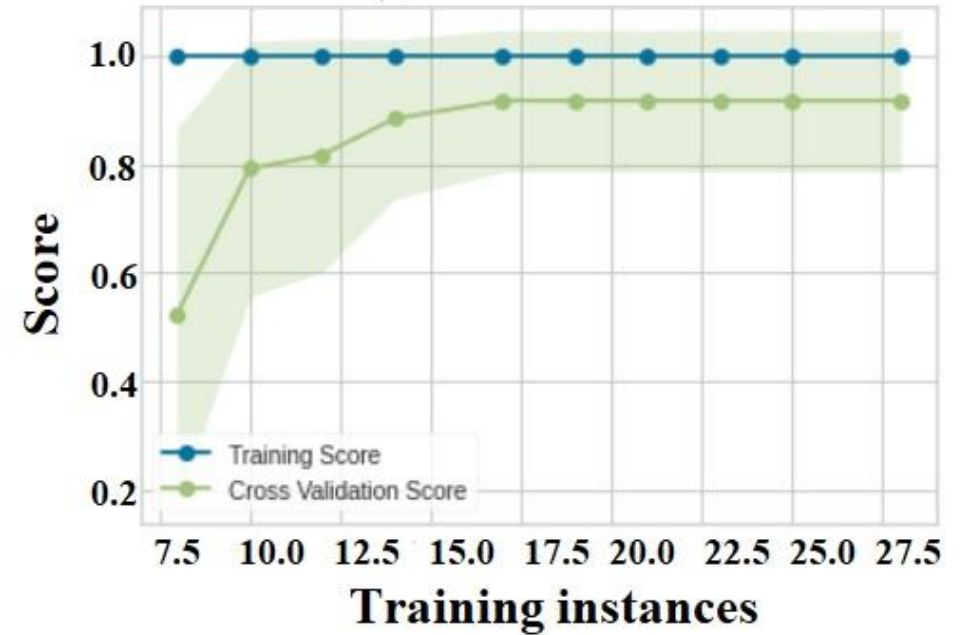


Fig. 3. Learning curve for Decision Tree classifier

# Conclusion

- The observed and calculated HRV features of the obtained AFIB ECG signal depended on the mean heart rate.
- The accuracy, area under the curve, recall, precision, and F1 score of the developed DT model are 91.67%, 92.5%, 90%, 95%, and 90%, respectively.
- This work observed an inverse relationship between the HRV features and the count of the F-waves.

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