

SPRINT 3: Classification of Arrhythmia by Using Deep Learning With 2-D ECG Spectral Image Representation

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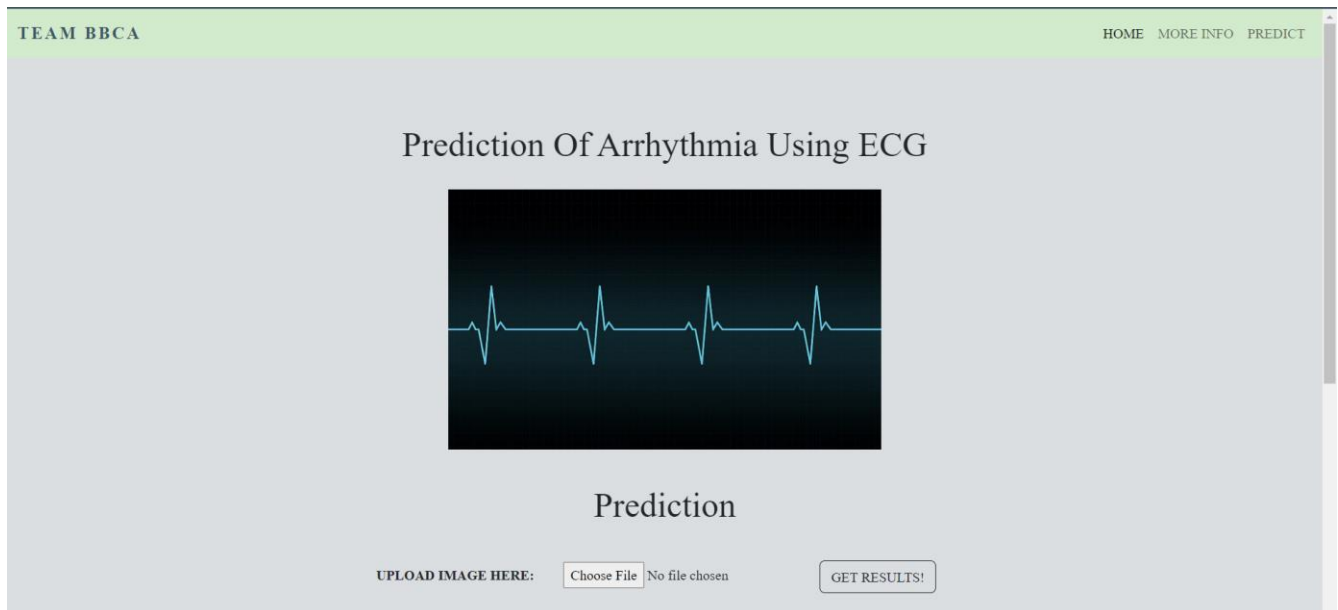
Code: Updated in GitHub in the Deliverables section in Sprint1 folder.

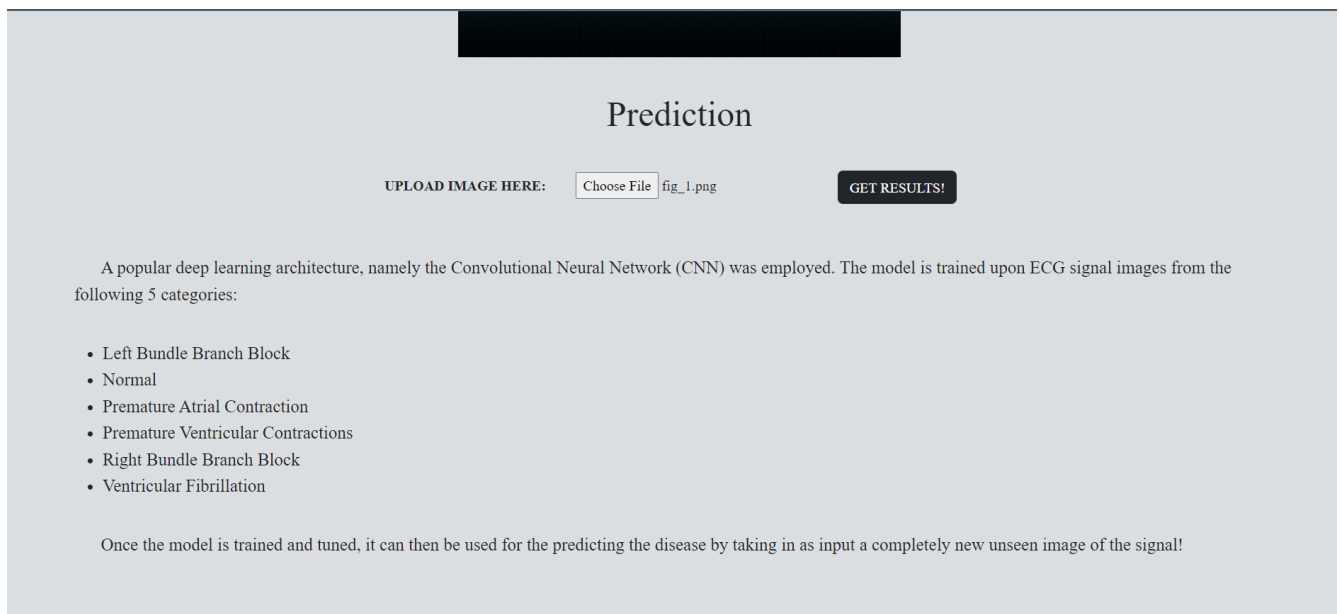
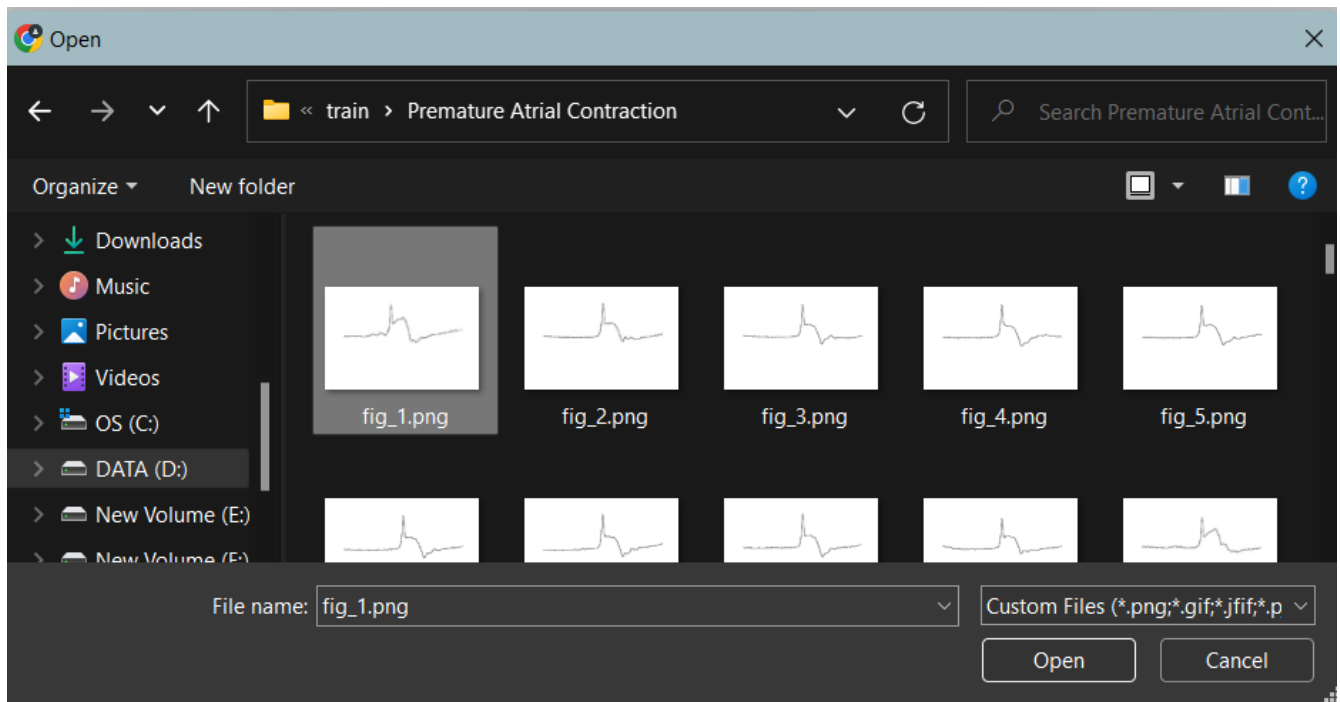
Description of USN and Screenshots:

USN-8:

As a user, I must be able to upload the ECG image for prediction.

Screenshot:





USN-9:

As a user, I must be able to view the results of the classification. Also, I must also receive additional information about the type of arrhythmia.

Screenshot:

UPLOAD IMAGE HERE:

Choose FileNo file chosen

GET RESULTS!

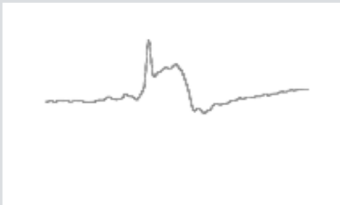
A popular deep learning architecture, namely the Convolutional Neural Network (CNN) was employed. The model is trained upon ECG signal images from the following 5 categories:

- Left Bundle Branch Block
- Normal
- Premature Atrial Contraction
- Premature Ventricular Contractions
- Right Bundle Branch Block
- Ventricular Fibrillation

Once the model is trained and tuned, it can then be used for the predicting the disease by taking in as input a completely new unseen image of the signal!

Prediction Of Arrhythmia Using ECG

Your uploaded image:



Prediction

Predicted category: Premature Atrial Contraction

Premature atrial contractions (PACs) are extra heartbeats that start in the upper chambers of your heart. When the premature, or early, signal tells the heart to contract, there may not be much blood in the heart at that moment. That means there's not much blood to pump out. A pause and a strong beat may follow the extra heartbeat, making it feel like a skipped beat. A premature atrial contraction can feel like an extra beat when there's more blood in the heart to pump than there is with a skipped beat. Premature atrial contractions are very common in adults but rare in children born without heart problems.

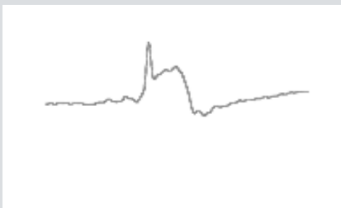
USN-10:

As a user, I must be directed to further sources of help which would help in the treatment process.

Screenshot:

Prediction Of Arrhythmia Using ECG

Your uploaded image:



Prediction

Predicted category: Premature Atrial Contraction

Premature atrial contractions (PACs) are extra heartbeats that start in the upper chambers of your heart. When the premature, or early, signal tells the heart to contract, there may not be much blood in the heart at that moment. That means there's not much blood to pump out. A pause and a strong beat may follow the extra heartbeat, making it feel like a skipped beat. A premature atrial contraction can feel like an extra beat when there's more blood in the heart to pump than there is with a skipped beat. Premature atrial contractions are very common in adults but rare in children born without heart problems.