

# Senior Project

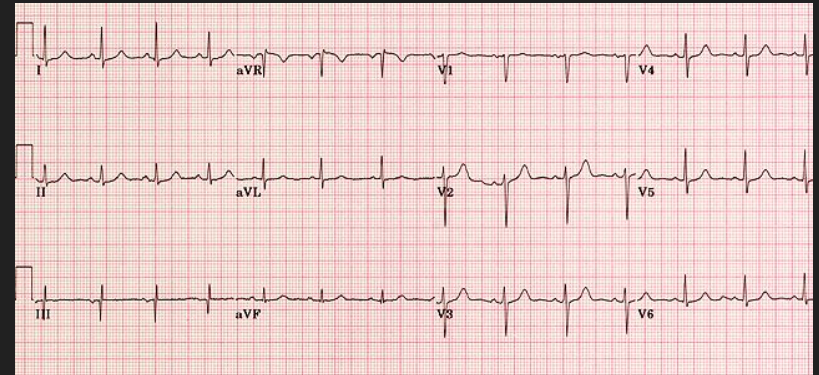
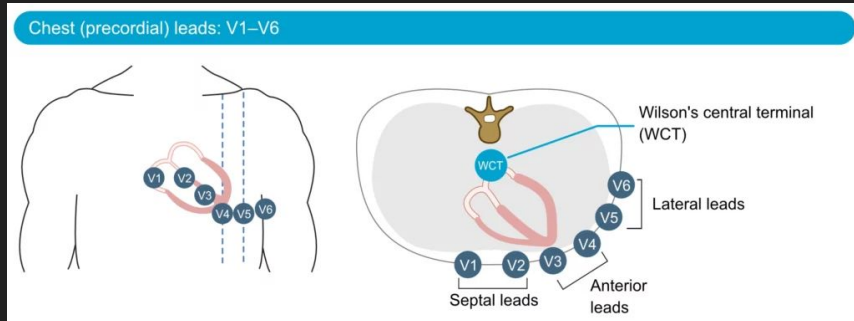
By

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# ECG Simulator Based on a Neural Network Trained With Real Patient Data

# What are ECG's

- Electrocardiograms or ECG are snapshots of the heart
- Doctors place leads which are electrodes to read the electrical currents when the heart contracts
- These electrical currents are then seen in ECG graphs as forms of waves
- P waves, QRS waves, and T waves

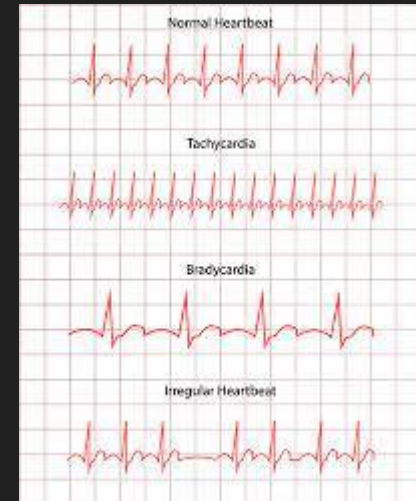
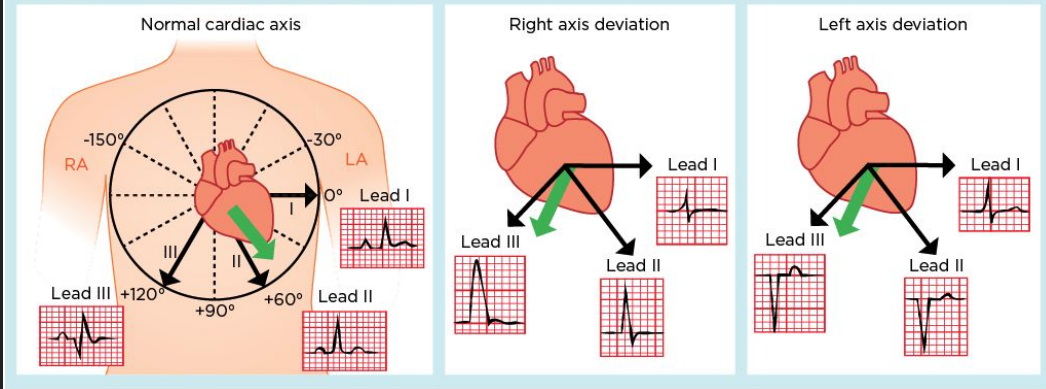


# How are ECGs used

With the assistance of an ECG, medical professionals can analyze a patient's heart rate and axis to help determine if the patient's symptoms are the result of a heart disease or abnormality, such as arrhythmia.

Medical professionals in training learn to recognize what each pattern signifies.

Fig 2. Assessing the cardiac axis



# Kern medical's ecg problem

- Outdated ECG Simulator
- Poor training for their staff
- No variations in ECG waves

# What we are doing

## Phase 1: ECG simulator

- Build a software that could simulate ecg's and output the different kinds of ecg's(diseases)
- Python
- Print a physical copy of an ECG for training purposes

## Phase 2: Neural Network with real patient data

- Improve are ecg simulator using real patient data

