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**Project Title**

Identification of abnormal cardiac rhythms using machine learning approaches

**Project Summary**

Abnormal heart rhythms and beats are associated with an increased risk of heart disease and mortality. Heart activity can be monitored by an electrocardiogram (ECG) which records the electrical activity of the heart. Unfortunately, it is time consuming and costly for clinicians to manually scan through lengthy ECG records. Machine learning, a process by which a computer can learn to automatically identify patterns, could represent a solution to this problem. The CLSA database, which contains thousands of ECG records could be used to train machine learning algorithms. The aim of our project is to develop a machine learning algorithm, trained on the CLSA database ECGs, which could automatically identify abnormal ECGs. These ECGs could be flagged by the system and reviewed by clinicians for confirmation of diagnosis. This automated approach could improve patient care and early diagnosis of cardiac disease, and represents substantial time and cost savings for health care systems in Canada.

**Keywords**

Machine learning, Deep learning, Electrocardiogram, Cardiology