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Machine Learning in Healthcare

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Final Project

"Forecasting Intracardiac Electrograms to Identify Arrhythmic Activity in Atrial Fibrillation"

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ABSTRACT

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, driven by regions of complex electrical activity within the atria. **Intracardiac electrograms (EGMs)** recorded during **ablation procedures** provide a direct window into these dynamics, yet their interpretation remains challenging due to the high spatial and temporal variability of the signals.

The goal of this project is to apply **machine learning** and **deep learning-based forecasting** techniques to predict the temporal evolution of EGM signals. The working hypothesis is that signals that are **easier to predict** correspond to **passively activated regions**, while those that are **harder to forecast** reflect **active arrhythmic drivers**.

This approach may help identify critical **ablation sites** and advance more personalised treatment strategies in atrial fibrillation.

1. INTRODUCTION AND PROBLEM DESCRIPTION

1.1. Introduction

2. DATA DESCRIPTION

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