

Classification of short ECG readings via topological time series analysis

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Atrial Fibrillation is a heart condition caused by unstable and chaotic heart rhythms leading to numerous health complications. While it is possible to detect this condition from electrocardiogram (ECG) readings, state of the art models require features that need processing and analysis from medical experts. In this talk, we present a classifier model that uses topological features of ECG readings to diagnose Atrial Fibrillation. Treating each ECG reading as a time series, we generate point cloud embeddings via sliding windows, and use persistent homology to extract its long-lived topological features. We discuss several advantages that the classifier enjoys over state of the art models, and summarize the topology-based features that the model uses. Finally, we present an analysis of the model's performance and cite future directions