

Project ID: 4

Project Name: Clinical Time Series Analysis using Deep Learning.

Project Supervisor: Sachin Kumar, Assistant Professor CIC

Project Members: Arjun Sharma, Anuthstha Kalia

Status: On going.

Project Abstract: Time series data finds use in various real life computer science applications such as financial and weather forecasting, speech and activity recognition, clinical data analysis, etc. With the advent of deep learning techniques, researchers have been constantly trying to find optimal architectures to model time series. In this project, we explore how a 2D dense representation can be generated for a given time series in order to allow better feature aggregation and understanding of long term dependence by Convolutional Neural Networks. We first evaluate and benchmark the performances of naive CNN and CNN+RNN models on such a representation for the Human Activity Recognition using Smartphones dataset available on UCI Machine Learning repository. Next, similar modelling is performed on clinical open source dataset (MIMIC III) in order to derive useful insights.

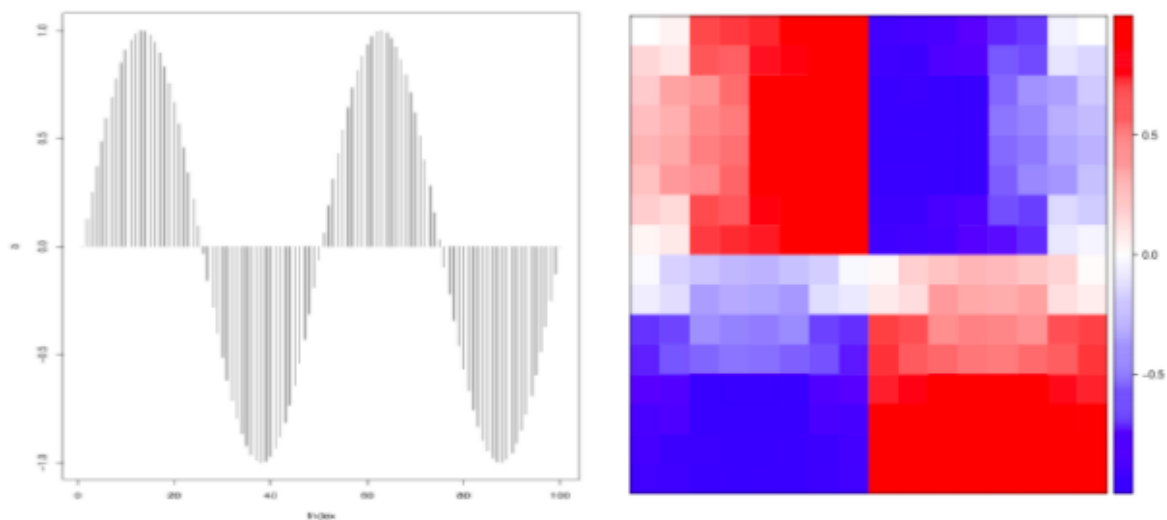


Figure 3: Hilbert image representation for a sine curve