



भारतीय प्रबंध संस्थान बेंगलूर
INDIAN INSTITUTE OF MANAGEMENT
BANGALORE

The Decision Sciences Area at IIM Bangalore welcomes you to a webinar, titled:

'Clustering of Financial Time Series Using Visibility Graphs'

by
Giriraj Achari



Date: 24th September, 2021

Time: 3:00 p.m. to 4:00 p.m.

Abstract:

The Visibility Graph technique is a novel approach to convert a time series to a complex network. The analysis of this complex network uncovers information about the dynamics of the underlying time series. Periodic time series transform into regular graphs, random time series transform into exponential random graphs and fractal time series result in scale-free networks. Multifractal time series exhibit slow power-law decay in autocorrelations of powers of absolute returns. The exponent of the tail power-law degree distribution of the visibility graph from a multifractal time series is able to capture information about the long-range dependence. In this paper, we develop a time series clustering algorithm based on visibility graphs and demonstrate its effectiveness at differentiating between different parametrizations of a multifractal data generating process. The visibility graph based clustering algorithm exhibits better clustering performance as compared to ACF based and GARCH based clustering methods.