Network structure of multivariate time series

1. Discussion of a non-parametric method on analysis of multivariate time series by mapping multi-dimensional time series into a multi-layer network
2. Suitable to large, heterogeneous and non-stationary time series
3. This multiplex network analysis can help us discriminate chaos from periods of financial stability
4. Visibility graph – it is a multi-layer network which is created from multidimensional time series data
5. Visibility algorithms are set of algorithms which maps/define mapping a time series of n data points into n nodes with edges representing
6. Linking criteria – natural visibility(convex) and horizontal visibility(ordering)
7. Undirected and directed graphs
8. Inter layer mutual information between layer alpha and beta
9. A coupled map lattice (CML) is a dynamical system that models the behavior of non-linear systems (especially partial differential equations). They are predominantly used to qualitatively study the chaotic dynamics of spatially extended systems.