Ahadpour, Sodeif; Sadra, Yaser; ArastehFard, Zahra


Summary: In order to study the dynamics of complex systems has been used information recorded in the form of time series. These time series can be investigated from a complex network perspective. Using two-state Markov chain and the binary visibility graph, we investigate these time series. Moreover, several topological aspects of the constructed graph, such as degree distribution, clustering coefficient, and mean visibility length are studied. Our results show that the Markov-binary visibility algorithm stands as a simple method to discriminate statistically dependent and independent systems. Some remarkable examples confirm the reliability of Markov-binary visibility graph for time series analysis.

MSC:
05C82 Small world graphs, complex networks (graph-theoretic aspects)

Keywords:
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