Abstract

Research into complex networks (CN) has become a key topic of interest across many disciplines in recent times. Complex systems are naturally pervasive and man-made systems, and because CN could be regarded as the bedrock of complex systems they appear in a wide range of scenarios stretching from societal and environmental to biological and technological systems. Stimulated by experimental and pragmatic analysis of interacted or connected systems such as the Internet, biological, and social networks, proponents in recent times have advanced diversified approaches and frameworks to aid in envisaging the performance of these systems. This paper presents a review in the field of CN, in particular, the outsets of degree distributions, the small-world effect, network correlations, clustering, synchronization, random graph models, models of network growth and special attachment, robustness and dynamical processes- interestingly taking place on networks. This review also aims at serving as a substratum for future research in the study area, particularly those pursuing their career synthetically in artificial intelligence. In the end, some important conclusions and possible
research directions of CN that essentially need to be studied in the future are proposed.

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Keywords

Complex network, scale-free networks, small world networks, synchronization