Reverse network science: If somebody gives you a network, how do you find out what it is for?

Initiative: "Experiment!" (beendet)

Ausschreibung: Explorative Phase

Bewilligung: 01.03.2021

Laufzeit: 1 Jahre 6 Monate

Most of the famous results in network science have been obtained by performing a statistical analysis on a network or a set of networks, in order to extract the non-random features. Further, data analysis and numerical simulation of dynamics using some mathematical model were used to catalog observable structure-function relationship and to hypothesize that they are relevant for an efficient functioning of the system at hand. Here, in contrast, the authors go from a careful assessment of statistical properties of the network to predictions of the network's possible functions. In this way, the foundation of network science is put to test and its achievements are evaluated in an unbiased fashion. If successful, this project can provide the theoretical foundation of network science built around an unavoidable set of relationships between network architecture and dynamics (or structure and function) that truly discriminate one network type from another.

Projektbeteiligte

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