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*Optimization of the relations in social network nodes using numerical simulations.*

In many disciplines including computational science and sociology, the study of networks and analyzing their patterns and structures of the data is pervasive. Using geometrical models and their patterns, this research focuses on sequence data and network analysis. The branches of some of the complex social networks may support for a given proposal while others may be against it. The key to the analysis of the behaviors of complex social networks, is to obtain more efficient procedures or structures. This paper investigates the relationships among the nodes and vectors representing communications with other branches, for complex 3D social networks as well as 2D networks using numerical analysis. This problem is formulated as an optimization problem since when a complex social network achieves a pattern, the optimal calculation of the complex social network can be derived at the same time. To increase the efficiency, the total number of branches can be maximized or minimized. The approximated optimization problem is then solved via a conventional method, or through a computer numerical simulation, a comparison can be done of the behaviors of 2D social networks to the complex linear 3D social networks that are presented. (Received February 02, 2016)