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Competitive Influence Diffusion Through Social Networks

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The dynamic of the information distribution is complex and affects everyday life, especially with the multiple ideas that are being released in social networks. These multiple ideas often have competing nature for the same nodes of the network. In this work we will discuss two competitive influence diffusion models in social networks. First, we take in consideration the competitive cascade model and at a certain point, the network will behave according to a competitive linear threshold dynamic model. We will assume that when a certain number of the nodes will have a specific information and when this number will grow up beyond a critical percentage of the active nodes, then we will reach an automatic collective change behaviour of the network. Each node in the network can be inactive or active (positively or negatively). If we can control the diffusion processes of the information in the network, we can predict the popularity of the innovation introduced. Since is a challenging task to predict the popularity of an innovation, by analyzing the dynamic of the network according to the competitive diffusion models as extended of single item diffusion. By joining the two models for the diffusion of the information on the directed networks, we will better understand the dynamic of the information distribution through the network, and how this distribution is affected from the different attitudes of the individuals when they firstly have this information. By combining and analyzing the two competitive diffusion models, extending them with two influence distribution functions, we take as a result as a better way to outperform in term of efficiency and effectiveness.

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