

Abstract Submitted
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Selection Strategies for Social Influence in the Threshold Model¹

PANAGIOTIS KARAMPOURNIOTIS, BOLESŁAW SZYMANSKI, GYORGY KORNIS, Rensselaer Polytech Inst — The ubiquity of online social networks makes the study of social influence extremely significant for its applications to marketing, politics and security. Maximizing the spread of influence by strategically selecting nodes as initiators of a new opinion or trend is a challenging problem. We study the performance of various strategies for selection of large fractions of initiators on a classical social influence model, the Threshold model (TM). Under the TM, a node adopts a new opinion only when the fraction of its first neighbors possessing that opinion exceeds a pre-assigned threshold. The strategies we study are of two kinds: strategies based solely on the initial network structure (Degree-rank, Dominating Sets, PageRank etc.) and strategies that take into account the change of the states of the nodes during the evolution of the cascade, e.g. the greedy algorithm. We find that the performance of these strategies depends largely on both the network structure properties, e.g. the assortativity, and the distribution of the thresholds assigned to the nodes². We conclude that the optimal strategy needs to combine the network specifics and the model specific parameters to identify the most influential spreaders.

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²Karampourniotis et al., PLOS ONE (in press); arXiv:1506.00986

Panagiotis Karampourniotis
Rensselaer Polytech Inst

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