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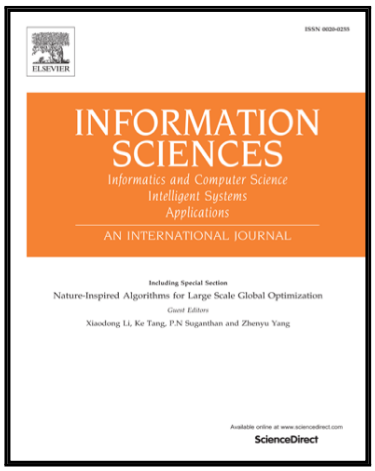

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ACCEPTED MANUSCRIPT

Managing consensus based on leadership in opinion dynamics

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Abstract: Opinion dynamics investigates the fusion process of the opinion formation in a group of agents, and is a powerful tool for supporting the management of public opinions. However, in real-life situations, firms or administrations are not only interested in the formation of public opinions, but also hope to influence and guide the forming opinions to reach either a consensus or even more a specific consensus point. This paper aims at developing a consensus building process in opinion dynamics, based on the concept leadership, by analyzing the structure of the social network in which all agents can form a consensus. It is then proposed a strategy adding a minimum number of interactions in the social network to form a consensus based on leadership, and afterwards it is generalized the consensus strategy to deal with the consensus problem with an established target. Eventually, detailed theoretical proofs and numerical analysis are provided to demonstrate the feasibility and effectiveness of the consensus strategy.

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