

Game theoretic analysis for large-scale networks and traffic data

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Game theory has recently become a useful tool for modeling and studying various networks. The success of its optimal strategic planning has attracted much attention from network researchers. The past decade already witnessed a huge explosion of interest in issues that intersect networks and game theory. Although a large number of efforts have been devoted to game theoretic analysis, there are still many interesting problems left to be explored, for example, a huge amount of data traffic, a large-scale network size, and a wide variety of heterogeneous terminals. Game theory correspondingly requires more intelligent transformation in the big data era.

The papers selected from the submission present a recent update in game theory. The selected papers not only cover popular research topics, e.g., cyber-physical systems (CPS) and social network analysis, but also provide new perspectives for radio networks and mobile communication.

N. Kumar et al. modeled a vehicular CPS using stochastic coalition game. Each vehicle was viewed as a player in a game, where the resource was limited and deployed on the cloud. The strategy proposed by N. Kumar et al. could optimize the performance of resource access for each vehicle. The experimental result demonstrated the effec-

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tiveness of the strategy. The paper by L. Xiao et al. studied the problem of antijamming power control for secondary users (SUs) in a large-scale cooperative cognitive radio network. Game theory was used to examine the interaction between SUs and a jammer. L. Xiao et al. derived Stackelberg equilibrium for network nodes and jammers. Furthermore, a strategy based on reinforcement learning for power control was proposed thereby to generate optimal power against jamming in the game. Similarly, Z. Wang et al. also focused on power control based on game theory and applied the proposed strategy to mobile networks. A energy-saving control was designed for future sustainable 5G networks. The work by R. Wang and W. Cai investigated the social networks. Sequential game theory along with Markov perfect equilibrium (MPE) was used to model user behavior in social network websites.

Through these papers, readers can obtain the advance of recent game theoretic analysis. Besides, readers can also understand several practical issues. Finally, the guest editors would like to appreciate anonymous reviewers, who gave valuable comments to the authors. Without their help, nothing can be achieved smoothly.