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Title: Algorithms for Graphical Games

Abstract: A graphical game merges network models with traditional game theory to achieve a new compact representation better suited for large-population game theory. The model graph allows the explicit encoding of the detailed structure of strategic interactions yet has a natural and simple intuitive meaning: players are represented as nodes in the graph and the payoff of a player is only a function of the actions of the player's neighbors in the graph and those of the player itself. In this talk, I will discuss computational and algorithmic aspects of graphical games. Algorithms for basic computations, including Nash and correlated equilibria, will be presented. Connections to related topics, such as graphical models for probabilistic modeling and inference, will be discussed. Throughout the talk, I will briefly sketch the state of the art in graphical games. Time permitting, I will conclude with a discussion on open problems and future research directions.