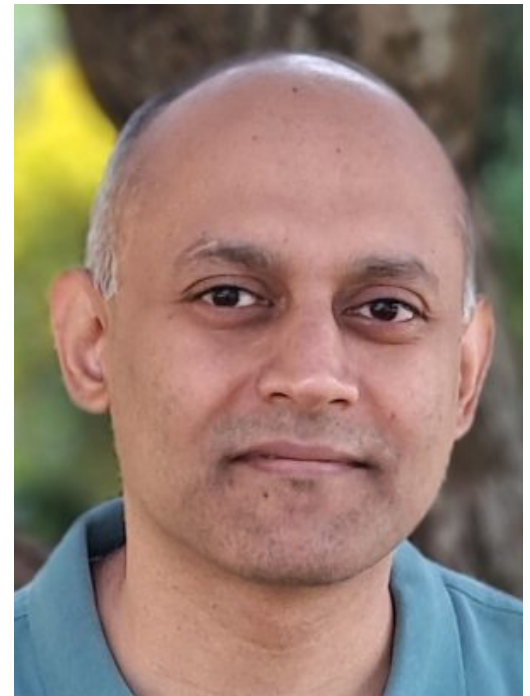


Title: Game-theoretic opinion dynamics for agents with resource limitations

ABSTRACT: We present a game-theoretic approach to modeling and analyzing opinion dynamics in social networks. In particular, we consider situations where the opinion formation is about the usage of limited resources. We model both single and multi-topic scenarios with either soft resource penalty or hard budget constraints. The opinion dynamics is the result of each agent simultaneously revising its opinion by "gradient ascent" of its own utility function. We analyze the evolution of opinions, including boundedness of opinions, convergence to an equilibrium and oscillatory behavior. In some special cases, we comment on the relative dominance of the agents on the steady state opinions. We also establish connections to Nash equilibria and prices of anarchy.



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4:00 PM