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Aspects of Submodular Maximization Subject to a Matroid Constraint

Abstract:

Submodular functions form a large natural class of set functions with applications in many fields including social networks, machine learning and game theory. Optimization of submodular functions subject to various constraints attracted much attention in recent years, both from theoretical and practical points of view. This talk considers the problem of maximizing a submodular function subject to a matroid constraint, which is a central problem demonstrating many of the modern approaches and techniques used in the field of submodular maximization. Many aspects of this problem have been studied, including its polynomial time approximability, fast (almost linear time) algorithms and online models. This talk surveys some of these aspects and explores a few of the main results obtained recently.