

Unconstrained Submodular Maximization

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Abstract

Submodular functions form a large natural class of set functions with applications in many fields, including social networks, machine learning, and game theory. Motivated by these applications, maximization problems involving submodular objective functions have attracted much attention over the last decade. Arguably, the simplest problem of this kind is the problem of unconstrained submodular maximization in which one is asked to find an arbitrary set maximizing a given submodular function.

Recent results have significantly advanced our understanding of the above problem and its approximability. In this talk I will present our randomized linear time $1/2$ -approximation algorithm for the problem and its (somewhat slower) derandomized version. If time permits, the matching hardness result by Feige, Mirrokni and Vondrák (2011) will also be presented.

Based on joint work with Niv Buchbinder, Joseph (Seffi) Naor and Roy Schwartz.