

# Fast Approximation Algorithms for Submodular Optimization Problems

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## Abstract

We consider three submodular optimization problems. For each of these problems we provide a different fast, combinatorial approximation algorithm. For the first problem, 'ranking with submodular valuations' our algorithm provides the best possible approximation. For the second problem, 'maximization submodular function under linear packing constraints', we match the best approximation provided by non-combinatorial algorithm. For the third problem, 'submodular Max-SAT', we get a non-trivial approximation in linear time.

Based on joint work with Iftah Gamzu and Ran Roth