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Tensor Decompositions from a Theoretical Computer Science Perspective

A large and particularly interesting class of NP-hard problems (the so-called Max-SNP problems) can be formulated using tensors, and approximation algorithms for such problems can be designed using tensor decompositions. Recent work in this area provided some provably accurate approximation algorithms for simple tensor decompositions that (unlike most other work) do not operate by reshaping ("flattening") the tensors in order to produce matrices. In this talk, we will discuss such decompositions and their potential applications.