

Abstract:

Given a set of n vectors with d dimensions, we consider a $d \times n$ matrix arranging them as column vectors. The matrix depends on the order of the column vectors, and we consider the *vector ranking problem* that finds the optimal permutation of column vectors to maximize/minimize an objective function defined by using non-decreasing subsequences of row vectors. The problem is a variant of multidimensional sorting, and related to the Internet Reranking problems. We investigate the complexity of the problems, which depend on models to formulate the nondecreasingness.