

Multiresolution methods for ranking

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Abstract

We use a recently introduced framework for multiresolution analysis on the symmetric group to predict rankings. Viewing preferences as sets of permutations, ranking prediction implies to handle probability distributions on the symmetric group, which usually leads to intractable storage or computations. We define a new smoothing technique based on wavelet decomposition that allows to obtain sparse representations for a large class of probability distributions. We show that in many practical cases, our method performs efficiently, in terms of storage and from a computational cost perspective as well.

Keywords: Ranking, Multiresolution analysis, Wavelets, Statistical estimation, Pairwise preferences.

AMS subject classifications: 62G05, 43A65.

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