
Optimal Ranking in Crowd-Sourcing Problems

Emmanuel Pilliat^{*1,2}

¹Institut Montpellierain Alexander Grothendieck – Université de Montpellier – France

²Mathématiques, Informatique et STatistique pour l'Environnement et l'Agronomie – Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement, Institut Agro Montpellier – France

Abstract

Motivated by crowd-sourcing applications, we consider a model where we have partial observations from an isotonic or bi-isotonic $n \times d$ matrix. with an unknown permutation π^* acting on its rows. Focusing on the twin problems of recovering the permutation π^* and estimating the unknown matrix, we introduce a polynomial-time procedure achieving the minimax risk for these two problems and for both the isotonic and bi-isotonic settings. The minimax risk is shown up to polylogarithmic factors for all possible values of n , d and all sampling efforts.

Keywords: MiniMax, Isotonic, Polynomial Time Algorithm

*Speaker