

# Collaborative Ranking-based Recommender Systems

Jun Hu

Dept. of Computer Science

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## Abstract

Collaborative ranking (CR) is one of the most common approaches in recommender systems. The general idea of CR is to combine matrix factorization (MF) with learning-to-rank (LTR) techniques for the purpose of accurately recommending interesting items to users. In this presentation, we will look into some technical issues when we combine these two approaches (i.e., MF and LTR) and then propose ways to resolve the issues. Furthermore, we present an ordinal regression method which models the ordinality of user rating scores. By applying MF in our ordinal regression framework, we show that it outperforms state-of-the-art methods in both of rating prediction and ranking tasks. At the end of this presentation, we will introduce a multi-objective CR method which simultaneously satisfies row-wise and column-wise order constraints in the rating matrix during optimization, and our method is able to learn more representative user and item latent features.

Defense Committee: Prof. Ping Li (Chair), Prof. Zheng Zhang, Prof. Yongfeng Zhang, Prof. Han Xiao  
(Department of Statistics and Biostatistics)