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Cover Letter: Transactions on Knowledge and Data Engineering

Dear Editor,

We are pleased to submit the attached research article entitled "Representation Learning and Pairwise Ranking for Implicit Feedback in Recommendation Systems" to be considered for publication, as a regular paper, in Transactions on Knowledge and Data Engineering. This article describes a novel ranking framework for collaborative filtering with the overall aim of learning user preferences over items by minimizing a pairwise ranking loss. We show the minimization problem involves dependent random variables and provide a theoretical analysis by proving the consistency of the empirical risk minimization in the worst case. We further derive a Neural-Network model that jointly learns a new representation of users and items in an embedded space as well as the preference relation of users over the pairs of items. We also demonstrate that our approach is very competitive with the best state-of-the-art collaborative filtering techniques proposed for implicit feedback.

The submitted file to TKDE is on ArXiv, but the work was not published (even partially) previously.

We would be willing to release the code on acceptance of the draft.

Thank you for your consideration

Yours faithfully,

S. Sidana, M. Trofimov, O. Horodnitskii, C. Laclau, Y. Maximov, M. Amini