Sparse knowledge graph-based recommendations

Recommendation systems are key for providing personalized experiences, but sparse data presents a significant challenge.

The problem

How to enhance recommendation accuracy using knowledge graphs techniques in sparse data scenarios?

The method

Multi-channel Knowledge-aware Network and Broad Learning (MKNBL) – a two-stage method that integrates knowledge from multiple sources to improve recommendations.

The solution

1. Extract rich side information from the KG using a multi-channel network.
2. Combine enriched user and item representations using Broad Learning (BLS) to enhance feature learning.

Framework overview

The diagram shows how the MKNBL framework extracts and processes semantic information from the knowledge graph. User and item embeddings are concatenated and enhanced using Broad Learning, leading to the computation of the connectivity weight matrix.