**GNNIE** is a recommendation system based on **Graph Neural Networks (GNN)**

Traditional Approaches

Today’s recommenders have limitations...

Collaborative Filtering shows items that similar users liked

- **Popularity Bias & Limited Personalization**

Content-based Filtering shows items that are similar to what you liked

- **Limited Novelty & Diversity**

**GNN Recommender** is like collaborative filtering but with more personalization

Using graph data on neural networks

→ **More Effective** by incorporating rich information

→ **More Efficient** as it only needs ‘nearby’ data

**GNNIE is different from other GNN recommenders**

**Precision Hit Rate**

Are we recommending what customers purchase?

- **100X**

**Recall Hit Rate**

Are customers purchasing what we recommend?

- **80X**

**Mean Reciprocal Rank**

Were the most likely items recommended first?

- **40X**

**Technical Highlight #1**

Enriched Edge Embeddings

- Rich edge information to make more personalized recommendations

**Technical Highlight #2**

Max Margin Loss Function

- Learn from both positive and negative graphs

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