



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

Traditional Approaches
Today's recommenders have limitations...

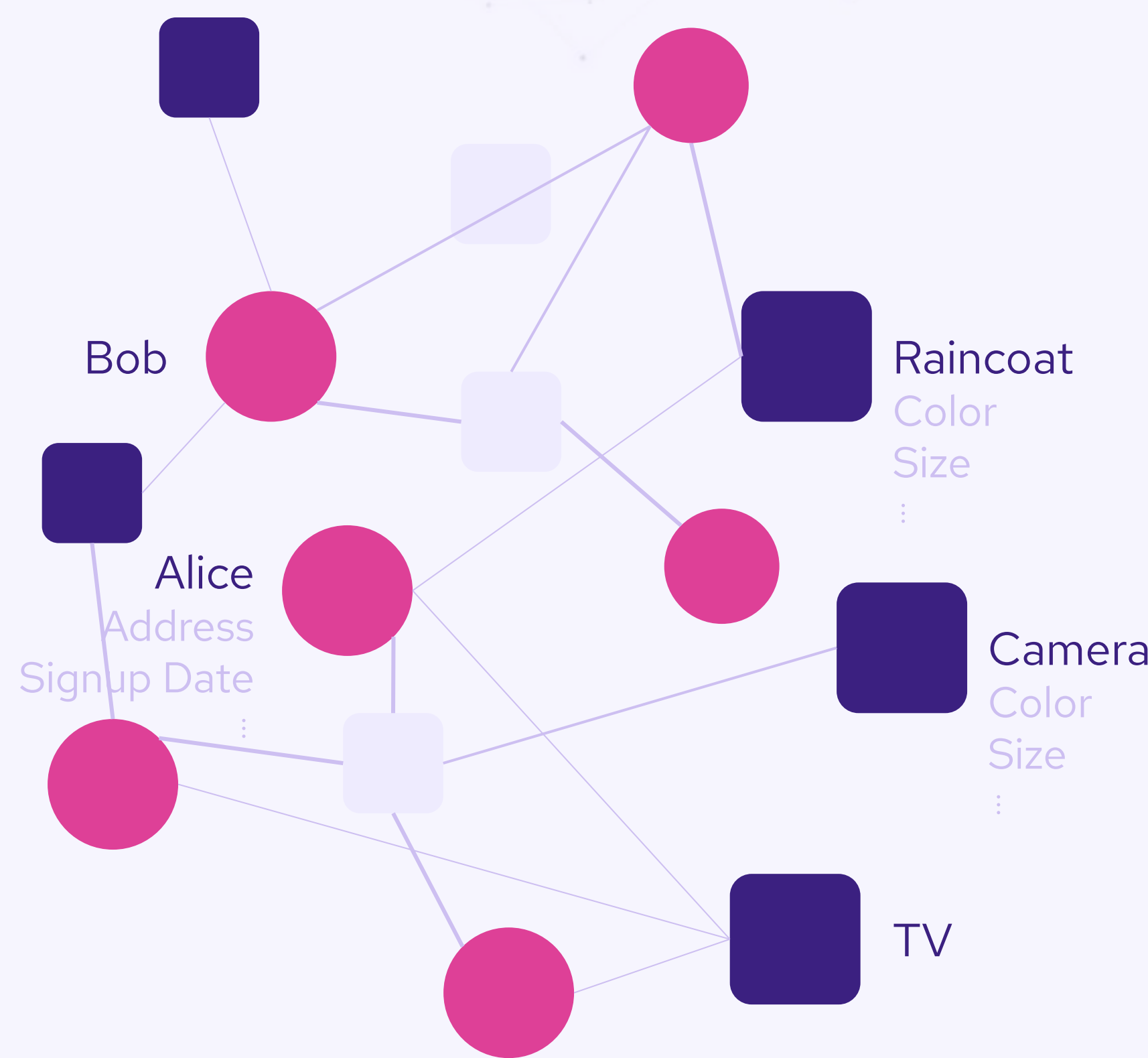
Collaborative Filtering
shows items that similar users liked
→ **Popularity Bias & Limited Personalization**

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

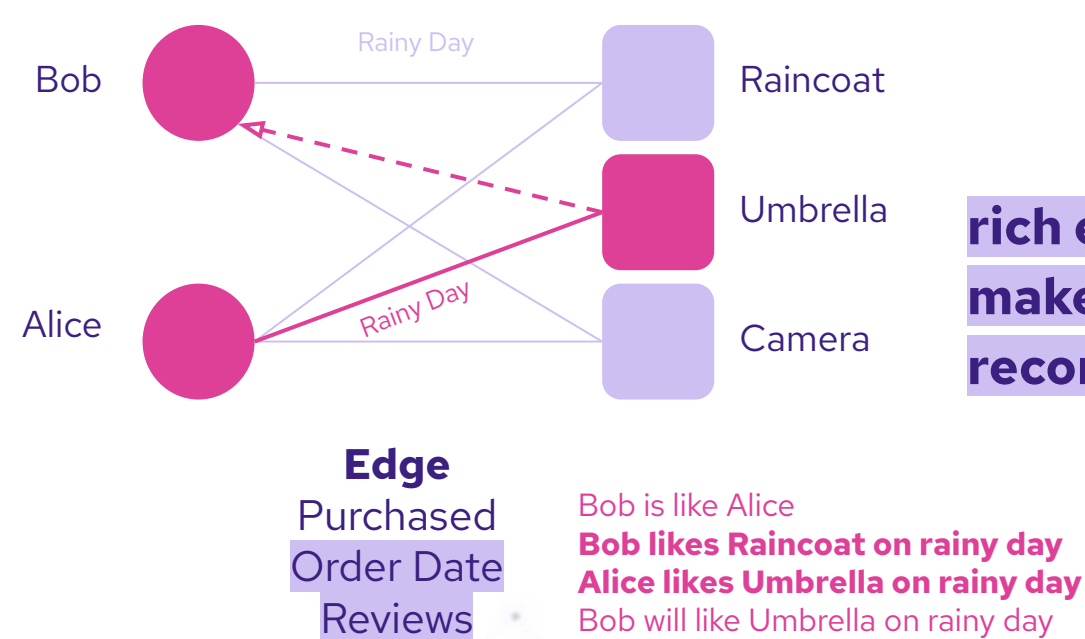


App

Designs

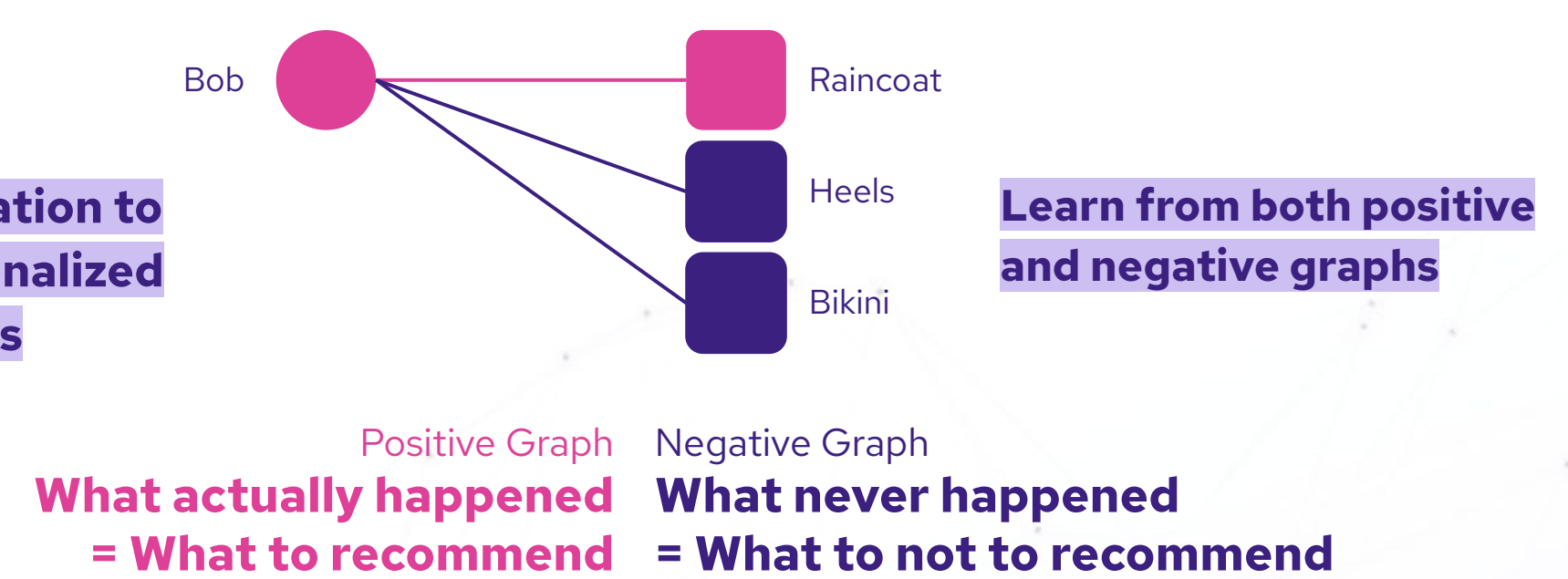
GNNIE is different from other GNN recommenders

Technical Highlight #1 Enriched Edge Embeddings

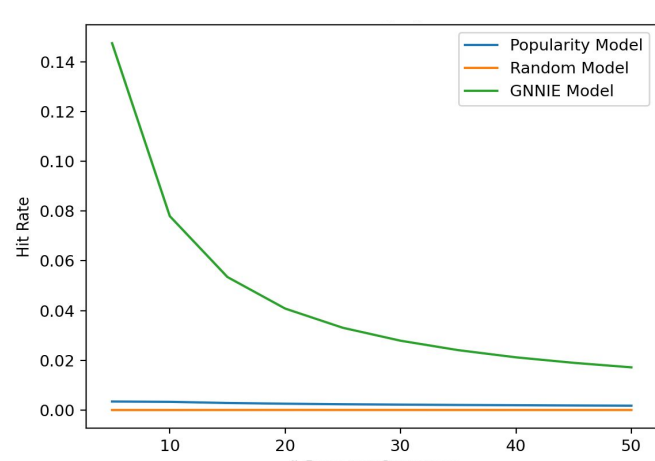


rich edge information to make more personalized recommendations

Technical Highlight #2 Max Margin Loss Function

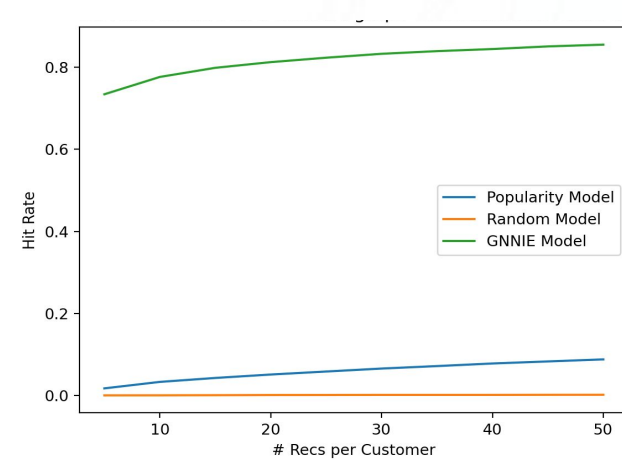


Precision Hit Rate
Are we recommending what customers purchase?



100X

Recall Hit Rate
Are customers purchasing what we recommend?



80X

Mean Reciprocal Rank
Were the most likely items recommended first?

Random Model	0.00028
Popular Model	0.01594
GNNIE Model	0.65964

40X

