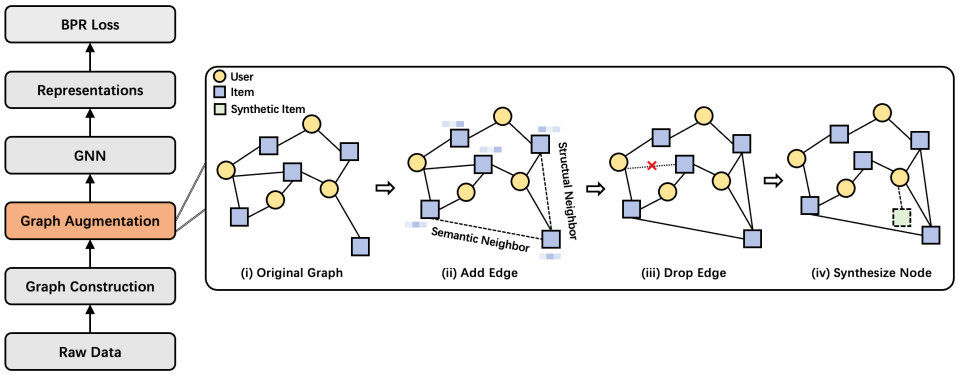
Knowledge Transfer Office
香港城市大學
City University of Hong Kong

# Training and/or Operating Graph Neural Network-Based Recommendation System

Communications & Information

Computer/AI/Data Processing and Information Technology




## Opportunity

Current recommendation systems often struggle to provide accurate recommendations for less popular items due to limited user-item interactions. This leads to a shortfall in personalization and customer satisfaction, as users may miss out on discovering relevant but less popular items.

The invention of a graph neural network-powered recommendation system presents an opportunity to address this problem. By focusing on item nodes with fewer user-item interactions and improving the learning process, this technology can provide more accurate recommendations for less popular items. It has the potential to revolutionize personalization in e-commerce platforms, streaming services, news portals, and other digital services.

## Technology

The technology behind this invention is a graph neural network-powered recommendation system. In simple terms, it is a method that helps digital platforms understand and recommend items to users based on their interests and preferences. The system analyzes data about users, items, and interactions between them to create a graph representation. It then focuses on items that have fewer interactions with users and improves the learning process to provide more accurate recommendations for these less popular items. This technology has the potential to revolutionize the way recommendations are made in e-commerce platforms, streaming services, news portals, and other digital services, enhancing personalization and improving user satisfaction.

### Remarks

1. International Exhibition of Inventions of Geneva (IEIG) 2024 - Silver Medal
2. 4th Asia Exhibition of Innovations & Inventions Hong Kong (AEII) (2024) - Bronze Award

### IP Status

Patent filed

Technology Readiness Level (TRL) ? 4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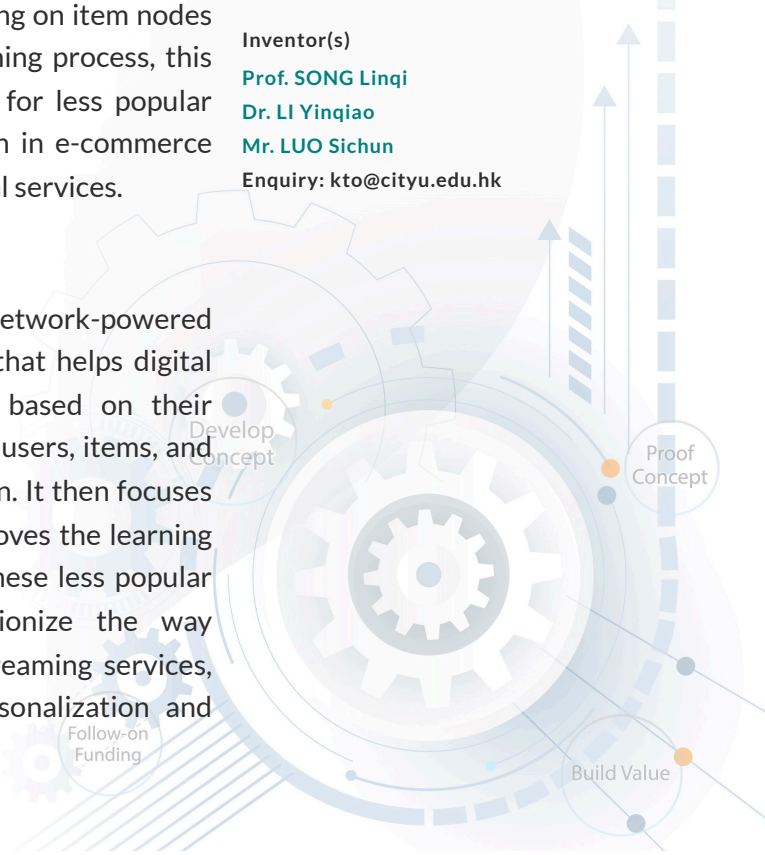

## Advantages

- Improved Accuracy: Our graph neural network-powered recommendation system provides more accurate recommendations, especially for less popular items, compared to current practices.
- Enhanced Personalization: By focusing on user-item interactions and understanding individual preferences, our technology enhances the personalization feature in digital services.
- Better Discovery of Less Popular Items: Our method allows users to discover and explore relevant but less popular items that may have been overlooked in current recommendation systems.
- Simplified Integration Process: Our technology offers a plug-and-play system, making it easier for existing platforms to adopt and integrate the recommendation system.
- Potential for Increased User Engagement: With more accurate recommendations and personalized experiences, our invention has the potential to drive user engagement and satisfaction in digital services.

## Applications

- E-commerce Platforms: Our recommendation system can be applied to e-commerce platforms, helping users discover relevant products and improving the shopping experience.
- Streaming Services: Our technology can enhance the content recommendation feature in streaming services, suggesting movies, TV shows, and music based on user preferences.
- News Portals: Our recommendation system can provide personalized news and article suggestions on news portals, ensuring users receive relevant and interesting content.
- Social Media Platforms: Our technology can be applied to social media platforms, offering personalized recommendations for users to connect with friends, join communities, and discover new content
- Online Marketplaces: Our recommendation system can enhance the browsing and shopping experience on online marketplaces, suggesting relevant products and increasing user engagement.