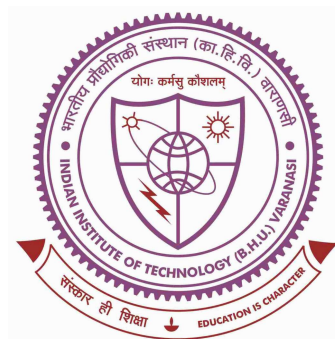


# Efficient models to identify groups in group recommender systems



Thesis submitted in partial fulfillment  
for the award of degree

Doctor of Philosophy

by

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2022

# Chapter 7

## Conclusion and Future directions

This PhD thesis focuses on efficient models that automatically detect groups of users with similar preferences in contexts in which the order and flexibility of user preferences are considered. This thesis describes an ‘Automatically identified group’ and shows how it plays an essential role in group recommendations. This thesis focuses on efficient models that automatically detect a group of users in group recommendations. The proposed models consider both order and flexibility of user preferences. This thesis contains preliminaries related to group recommendations and a detailed literature review of existing methods for auto-detecting groups in group recommender systems. Next, efficient proposed models are described elaborately. The proposed models overcome few of research gaps. The sparsity problem in recommendation systems infers a curse of dimensionality. In this thesis, some dimensionality reduction techniques and models are also proposed for auto-detecting groups. Proposed models tackle scalability and data sparsity problems to some extent.

There are some limitations and constraints associated with the proposed models and techniques. In the case of the OPHAencoder model and MinHash technique, a utility matrix must be converted into a characteristic matrix containing only binary elements. In Chapter 6 of the thesis, the proposed model is unsuitable when considering social phenomena like emotional contagion, conformity, etc., in making recommendations. The proposed model can not alleviate the cold start problem also.

**Future directions:** There is a need to introduce more dimensionality reduction techniques to provide compact representations of users and items. Efficient models need to be introduced in location-based social networks for POI group recommendations. Of late,

graph neural networks and hypergraph convolution neural networks are playing promising roles in recommender systems. Incorporating more graph-based techniques is needed to exploit the transitive relation among data items. Multimodal inputs like textual data and images can be incorporated for hotel recommender system, travel recommender system, etc.