# A hybrid CBR approach for the LONG TAIL PROBLEM in Recommender Systems

Gharbi Alshammari (UoB); Jose L. Jorro-Aragoneses (UCM); Stelios Kapetanakis (UoB)
Miltos Petridis (Middlesex U.); Juan A. Recio-García (UCM); Belén Díaz-Agudo (UCM)

## Our Contribution

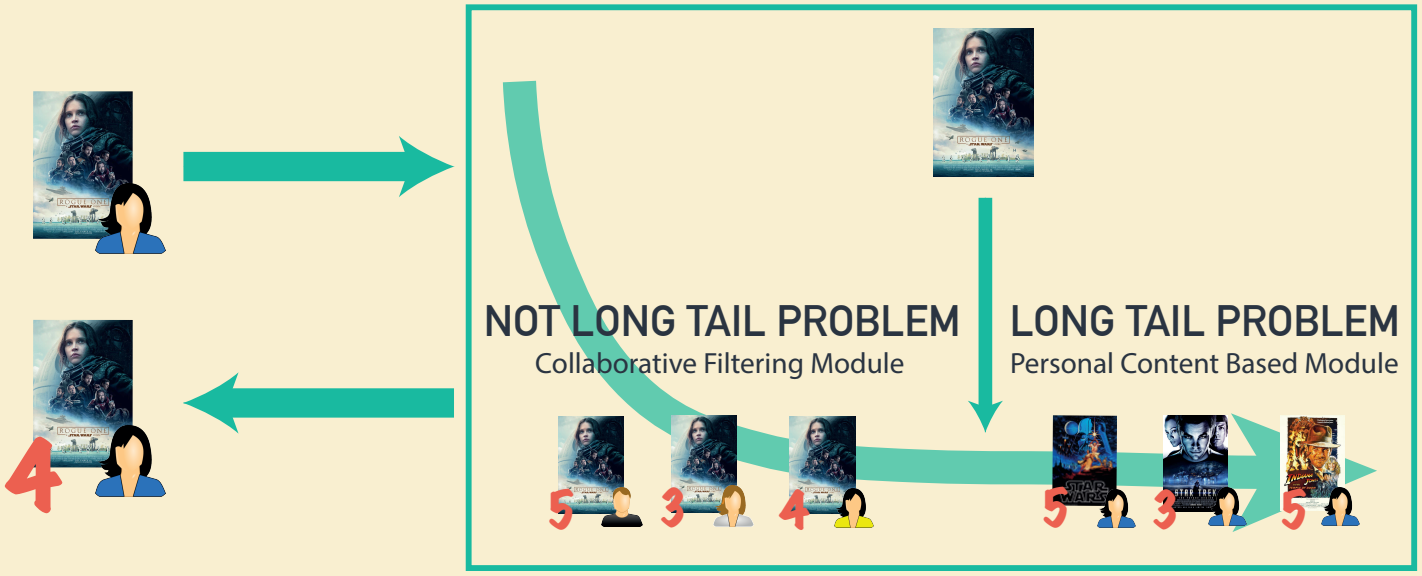
In this paper, we explain a hybrid recommender system using CBR to resolve the Long Tail problem in recommender systems. The use of collaborative filtering and content-based filtering models can resolve the long tail problem without further item overheads and expensive pre-calculations in the recommendations

## Information

A common challenge in recommender systems is the Long Tail Problem. This is an item distribution observation that affects unpopular or new items. Usually recommender systems either ignore these items in their recommendations or require substantial pre-processing to work with them

## Model

1) The system selects the most appropriate CBR retrieval module based on the number of ratings for the enquired movie
2) Collaborative Filtering retrieves the movie ratings of similar users
3) Content-Based module retrieves the ratings of similar movies in the user history
4) The system recommends a predicted rating based upon the retrieved ratings

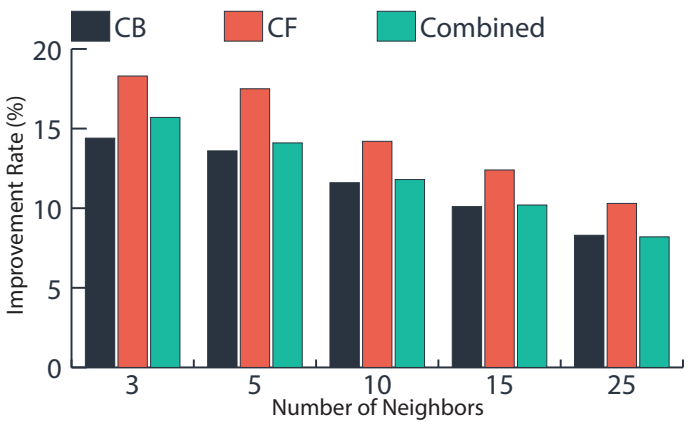



## Evaluation

We calculate the improvement rate of our model comparing to three baselines: a content based filtering, a collaborative filtering and a combined recommender model

**LeaveOneOut - MovieLens**

100K ratings | 943 users | 1600 movies




University of Brighton
Universidad Complutense Madrid
Middlesex University London

Contact:
g.alshammari@brighton.co.uk
jljorro@ucm.es

ICCBR17