

## Accepted Manuscript

Recommender system based on scarce information mining

Wei Lu, Fu-lai Chung, Kunfeng Lai, Liang Zhang

PII: S0893-6080(17)30104-1

DOI: <http://dx.doi.org/10.1016/j.neunet.2017.05.001>

Reference: NN 3753

To appear in: *Neural Networks*

Received date: 18 July 2016

Revised date: 19 March 2017

Accepted date: 3 May 2017



Please cite this article as: Lu, W., et al., Recommender system based on scarce information mining. *Neural Networks* (2017), <http://dx.doi.org/10.1016/j.neunet.2017.05.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Recommender System Based on Scarce Information Mining

Wei Lu<sup>b</sup>, Fu-lai Chung<sup>a,\*</sup>, Kunfeng Lai<sup>c</sup>, Liang Zhang<sup>a</sup>

<sup>a</sup>Department of Computing, Hong Kong Polytechnic University, Kowloon, Hong Kong

<sup>b</sup>School of Management and Economics, University of Electronic Science and Technology of China, Chengdu, China

<sup>c</sup>Tencent, Nanshan Technique Park, Shenzhen, China

---

## Abstract

Guessing what user may like is now a typical interface for video recommendation. Nowadays, the highly popular user generated content sites provide various sources of information such as tags for recommendation tasks. Motivated by a real world online video recommendation problem, this work targets at the long tail phenomena of user behavior and the sparsity of item features. A personalized compound recommendation framework for online video recommendation called Dirichlet mixture probit model for information scarcity (DPIS) is hence proposed. Assuming that each clicking sample is generated from a representation of user preferences, DPIS models the sample level topic proportions as a multinomial item vector, and utilizes topical clustering on the user part for recommendation through a probit classifier. As demonstrated by the real-world application, the proposed DPIS achieves better performance in accuracy, perplexity as well as diversity in coverage than traditional methods.

*Keywords:* Recommender system, Probabilistic topic model, Content-based filtering, Latent structure interpretation

---

## 1. Introduction

Recommender systems have changed the way people discover items on the web. How to suggest new items based on their needs and interests is an important task. To model the interaction between users and items, we must understand the

---

\*Corresponding author

Download English Version:

<https://daneshyari.com/en/article/4946615>

Download Persian Version:

<https://daneshyari.com/article/4946615>

[Daneshyari.com](https://daneshyari.com)