3.19 Hybrid Recommender System for Multimedia

Keywords

Recommender system; content-based recommendation; collaborative filtering; hybrid recommender system; sentiment analysis; multimedia recommendation

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See Section 4 of the present document

File reference & version number:

Software disclosure 10782

Functional description

This system performs generic and personalized recommendation of multimedia content: typically A/V lectures, but also images or videos. We have identified the metadata most relevant for content-based (CB) recommendation. We have defined a method to combine CB and collaborative filtering (CF), which is applicable to both cold-start and non-cold start settings. In one-class CF problems (when users only mark items as favorites, or ignore them), we can complement user action information with user sentiment extracted from user-generated texts such as comments. Furthermore, we can perform fine-grained sentiment analysis in terms of aspects, learning to detect which sentences of reviews or comments are likely to refer to given aspects, for review segmentation and summarization.

Innovative aspects

- Hybrid content-based / collaborative filtering recommender
- Complement one-class ratings with sentiment of comments
- Aspect-based analysis of reviews, extracting most representative sentences

Commercial application examples

- Recommender systems for large or small collections
- Explanation of recommendations based on user reviews

More information

Nikolaos Pappas and Andrei Popescu-Belis, "Combining Content with User Preferences for Non-Fiction Multimedia Recommendation: A Study on TED Lectures", *Multimedia Tools and Applications*, Vo.74, No.4, pp. 1175–1197, 2015.

Software & IPR status

Open sources:
- CBRec v1.0: https://github.com/idiap/cbrec
- EMORec v1.0: https://github.com/idiap/cbrec