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Multimedia Recommendation: Technology and Techniques

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Categories and Subject Descriptors

H.3.3 [**Information Search and Retrieval**]: Information Search and Retrieval

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1. INTRODUCTION

In recent years, we have witnessed a rapid growth in the availability of digital multimedia on various application platforms and domains. Consequently, the problem of information overload has become more and more serious. In order to tackle the challenge, various multimedia recommendation technologies have been developed by different research communities (e.g., multimedia systems, information retrieval, machine learning and computer version). Meanwhile, many commercial web systems (e.g., Flick, YouTube, and Last.fm) have successfully applied recommendation techniques to provide users personalized content and services in a convenient and flexible way.

When looking back, the information retrieval (IR) community has a long history of studying and contributing recommender system design and related issues. It has been proven that the recommender systems can effectively assist users in handling information overload and provide high-quality personalization. While several courses were dedicated to multimedia retrieval in the recent decade, to the best of our knowledge, the tutorial is the first one specifically focusing on multimedia recommender systems and their applications on various domains and media contents. We plan to summarize the research along this direction and provide an impetus for further research on this important topic.

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2. TUTORIAL OVERVIEW

This tutorial is devoted to scholars and industry practitioners working on information retrieval, multimedia information management, machine learning and data mining applications as well as those people that would like to get aware of the research field of multimedia recommendation and their major real applications. The tutorial consists of five core sections, and it is structured as follows,

- Introduction and Overview: The tutorial will start with a variety of vivid examples demonstrating why effective recommendation is so important for Web scale multimedia search and sharing. Then, we discuss a few important issues that are most relevant to recommender system design and evaluation. They include long tail, information overload and user behavior.
- Image and Video Recommendation: We examine current commercial systems and research prototypes, focusing on comparing the advantages and the disadvantages of the various strategies and schemes.
- Go beyond Visual Data: Music Recommendation: The importance of music recommendation is discussed firstly. Next, a few fundamental topics (e.g., user modeling, major business models, algorithm design, large scale system evaluation and key applications) will be explored in detail.
- Personalization and Contextualization: The majority of existing multimedia recommendation systems focuses on recommending the most relevant items to individual users and generally ignores any contextual information. We discuss what kind of role contextual information can play in building personalized multimedia recommendation. We also examine the approach to estimate individual preference and analyze contextual information.
- Summarization and Conclusion: Multimedia recommendation is a very exciting research area. After reviewing recent technical developments, this section aims to explore a set of open issues for the future study and potential solutions.