Research Paper

EXPERT BASED RECOMMENDATION FOR ACADEMIC EVENT

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Abstract

With the increasing of academic event such as workshop and seminar offered by the organizer, choosing the right academic event to attend can be a confusing and difficult task. Thus, most of the students rely on friends and lecturer’s recommendation which considered experience enough in choosing the right academic event. Transforming the idea of getting a recommendation from a person who has wide experience in academic and research fields into a recommendation technique become the purpose of this study. The recommender system with an expert recommendation will help student to find an academic event that match with their need and interest. The architecture of this recommender system is discussed.

Key Terms: Recommender System, Academic Event, Expert Recommendation, Collaborative Filtering

1. Introduction

Academic event is an activity attended by academician to present their research work or foster potential collaboration (Pham et al. 2012). It is also a place for an academician to share, learn and apply knowledge gained to enhance and improve their skill. Academic event can also be known as seminars, workshops, technical talks, upskill programs, and other academic-event related programs. Attending an academic event that meet the needs and preference is crucial. However, selecting the event to attend is quite tedious and exhausted without any recommendation and reference from others especially for those who are new in academic world. This is due to the enormous growth of the academic event offered by the organizer every year.

In solving decision making problems, people may converse with friends, consult the internet, trust their gut instinct or follow the crowd (Bookhris & Ayachi, 2014). Hence, most of students rely on senior or lecturer recommendation on which academic event to attend. Consider that both seniors and lecturers have an experience on attending numerous academic events, thus their recommendation is valid. Other than that, their wide experience in academic also takes part in considering the reliability of the recommendation.
Despite of friends, seniors and lecturer’s recommendation, recommender system play a great help to assist in eliminating the massive list of academic event to attend (Hoang et al., 2016, Pham et al., 2012, Yang et al., 2012). Recommendation system main purpose is to discard option that not related to user preference. It is widely implemented in most of the system which aims to present items that are likely to be interest to user and succeed (Minkov et al., 2010).

Existing studies on academic event recommender system are focusing more on proposed a technique with exploiting the authors of the published paper in order to find the right academic event to attend (Medvet et al., 2014, Boukhris et al., 2014, Luong et al., 2012, Chen et al., 2015, Huynh and Hoang, 2012). Also, most of it is for conferences recommendation only instead of overall academic event recommendation (Asabere et al., 2014, Hornick et al., 2012). Therefore, the development of an academic event recommender system which recommends overall academic event is essential especially academic event like seminar and workshop.

The main objective of this paper is to develop a recommender system based on an expert recommendation. Instead of receiving email from lecturers on which academic event to attend, an expert recommender system for academic event will offer great benefit for a student in finding the academic event that meets their needs and preferences.

2. Literature Review

2.1 Expert Recommendation

An expert is a person that has knowledge and specialization in a specific field, and opinion from this person can be useful (Jøsang, Ismail & Boyd, 2007, Asawachatroj and Banjerdpongchai, 2012). Expert recommendation has been applied in various areas for example Software Engineering (Mockus and Herbsleb, 2002), Enterprise (Balog et al., 2006), Medecine (Sun and Giles, 2007) and Research (Liu and Dew, 2004). Furthermore, expert opinion is crucial as their knowledge can be used as a reference for people who have little knowledge.

In this study, the expert is defines based on their experience in academic and has wide knowledge in their research area or domain. Their title and position in academic also take place in defining an expert.

2.2 Academic Event

Attending academic events are crucial for academician because the knowledge or skill shared might be crucial for them to learn in order to finish their study or research. It is also enhanced their academic profiles. Whereby, selecting an academic event is very important in order to get the right knowledge and to avoid wasting time and money on unrelated skill and knowledge.

Inexperience academician might find it is a difficult task to select academic event to attend compare to experience academician. Experience academician may already know the most suitable academic event by only looking at the speaker and organizer. In this study, the future academic event is recommended by using the speaker from the previous event that has higher rating rated by an expert with the similar domain.

2.3 Recommender System

Recommender System is a vital component in developing an application especially the one that expose the user with huge collection of items. It helps users to decide on appropriate items, and ease the task of finding preferred items in collection.

Generally, recommender system is classified into three approaches which are collaborative filtering, content-based filtering and hybrid filtering (Adomavicius & Tuzhilin, 2005). Collaborative filtering recommends item based on the user that share interest in similar item. Rating matrix from the nearest neighbor is calculated for this approach. In contrast, content-based filtering uses the content of similar item that user showed interest in the past.
Therefore, items with similar content to the current viewing item will be recommended to the user (Felferning et al., 2007). Hybrid filtering combines both content-based and collaborative filtering approaches in order to make a recommendation and try to fulfill both approaches deficiency.

3. Methodology

Research methodology for this study consists of three phases which include information gathering, the development of the technique and tool, and the evaluation of the technique.

3.1 Information gathering

Collecting all information related to recommender system, academic event and expert recommendation. Consist of two phases which are literature analysis and comparison study.

3.1.1 Literature analysis

Identify and summarize finding on selected topic and domain. It was conducted in order to have a better understanding of existing study on recommender system in all domains. It is also to get an idea on what to enhance or to improve on previous study. In addition, literature analysis helps in selecting topic in this study.

3.1.2 Comparison study

Important information extracted from reviewed article and journal. The aim of this comparison study is to get problem, research gap or any enhancement that can be done for recommender system. Topic and technique and tools are identified after comparison study is completed.

3.2 Designing and developing the tool

The system was designed and developed using a web based system. Figure 1 shows the architecture of the system. The architecture has four components consist of Input, Output, Database and Process.
3.3 Evaluation

The evaluation will merely focus on the recommendation technique. The evaluation will be conducted using precision technique where relevancy of the document retrieved is count.

4. System Architecture

The architecture consists of four main components which are Input, Process, Database and Output as discussed below:

4.1 Input

In input model, participant and organizer will input their details. Other than that, organizer need to input event and speaker information to the system. Participant who is also consider as user need to register and complete the education background section in order to evaluate either they are qualify as an expert or not.

4.2 Process

In Process, there are 4 sub-components involve. The sub-components are user/expert profile component, search/feedback component, event component and recommendation component.

4.2.1 User/Expert Profile Component

This component receives information from Input component and stores it in the Database component. In this component, the user needs to complete education backgrounds information which are education level, position, number of publication, area of research, and years in area of research. This information will be used to define either they are qualified to be an expert for the domain or not. All qualified expert user will be stored in the Expert table.

![Education Background](image)

Figure 2: Education Background

4.2.2 Search/Feedback component
Search component retrieves event based on keyword and recommender component (explain in recommender component section 4.2.4). Feedback component consists of the rating given by the user on event and speaker.

### 4.2.3 Event Profile component

This component receives information from Input module from the organizer and stores it in the Database module.

### 4.2.4 Recommender component

The recommender component uses the expert recommendation on academic event that has been rating by them. Consider that academic event can only be rated once the event is finished and recommending past event is not appropriate. Thus, in this study recommendation is based on future event that has the same speaker from the past event rated by the expert. Event retrieved based on above recommendation will be ranked by identified the speaker that has the highest rating.

### 4.3 Database

This component has three tables which are event, user and expert.

- **Event table**: It stores all event details such as event title, event description, domain, sub-domains, event types, event dates, registration dates, venue, organizers and institution.
- **User table**: It stores participant and organizer information.
- **Expert table**: It stores expert education level, position, number of publication, experience in research area or domain and domain.

### 4.4 Output

Display list of events from the recommender component.

![Search Academic Event](image)

**Figure 3** : List of Academic Event

### 5. Conclusion

This study proposed an expert based recommendation as a technique to find an academic event that meets the needs and preferences. Expert is determined based on their academic background and research experience. By finding the right academic event, the student can develop more skills and knowledge. The evaluation of this study will be conducted on the next stage. In the future, more criteria should be added in order to define expert.

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