Optimal Keyword Search for Audio Libraries

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Abstract: Keywords are used to index data, generate tag clouds or for searching. AlchemyAPI's keyword extraction, API is capable of finding keywords in text and ranking them. In this paper addresses the problem of getting the related keywords from conversations, with the goal of using these keywords to retrieve, for each short conversation part, a small number of potentially significant documents, which can be suggested to participants. Moreover, using an automatic speech recognition (ASR) system introduces errors among them. We first propose an algorithm to getting the related keywords from the output of an ASR system, which makes use of topic modelling techniques. Then, we propose a method to obtain multiple topically separated queries from this keyword set, in order to make best use of the chances of making at least one applicable suggestion when using these queries to search over the audio repository.

Keywords: Document recommendation, information retrieval, keyword extraction, meeting analysis, topic modeling.

I. INTRODUCTION

It is one of the techniques to overcome the problem of keyword extraction from conversations, with the goal of using these keywords to get back the needed information.
For each short conversation fragment, a small number of potentially relevant documents, this can be recommended to participants.

However, even a short fragment contains a variety of words, which are nearly related to several topics.

Moreover, using an Automatic Speech Recognition (ASR) system introduces errors among them. Therefore, it is difficult to infer correctly the information needs of the conversation participants.

II. LITERATURE SURVEY

2.1 Topic Identification Based Extrinsic Evaluation of Summarization Techniques Applied To Conversational Speech
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Automatic document summarization algorithms are often evaluated by comparing the summaries they create next to summaries written by human experts. This is known as an *basic* estimation, and the most ubiquitious metric used for this standard is the ROUGE score. We consider the example of an information retrieval (IR) system. IR systems often display short summaries of retrieved documents in order to support users in selecting documents applicable to their query or task. In our experiments, we use topic identification (topic ID) performance as a proxy for relevancy determination. For this approach, documents in an evaluation quantity need only be labelled by topic, and do not require the more expensive creation of human-generated summaries that ROUGE requires.

2.2 Linking Educational Materials to Encyclopedic Knowledge
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According to studies in cognitive science, an important characteristic of the understanding and learning process is the capability to connect the learning material to the earlier knowledge of the learner. Similarly, research in active reading and learning has shown that active reading skills can improve the effectiveness and efficiency of information comprehension. The amount of background knowledge essential for a satisfactory understanding of an educational matter depends on the level of explicitness of the text.

III. EXISTING SYSTEM

In the existing system, human are enclosed by an unmatched wealth of information, available as documents, databases, or multimedia resources.
Access to this information is hardened by the accessibility of suitable search engines.

3.1 Drawbacks of Existing System

In general, users participate in a meetings, their information wants to be modeled as implicit queries that are constructed in the background from the pronounced words, obtained during manual recognition.

These explicit queries are used to get back and suggest documents from the Web or a local repository, which users can choose to inspect in more detail if they find them.

IV. PROPOSED SYSTEM

Then to overcome the existing system drawbacks propose a method to obtain multiple topically separated queries from this keyword set, in order to make best use of the chances of making at least one appropriate recommendation when using these queries to search.

The proposed methods are evaluated in terms of significance with respect to conversation rated by several human judges.

The scores show that our proposal improves more than previous methods that consider only word frequency or topic similarity, and represents a capable solution for a document recommended system to be used in conversations.

4.1 Advantages of Proposed System

To maintain multiple hypotheses about users information need. To present a small sample of recommendations based on the most likely ones.

Retrieving of documents by keyword query is faster and Clustering of documents by multi-key word similarity.

V. MODULES

5.1 Information retrieval

This method begins once a speaker decides what to mention and really speaks a sentence then their information needs can be modeled as implicit queries that are constructed in the background from the pronounced words, obtained through real-time automatic speech recognition (ASR).

These implicit queries are used to retrieve and recommend documents from the storage where they actually getting, in which users can choose to inspect in more detail if they find them interesting.

The focus of this paper is on formulating implicit queries to a just-in-time-retrieval system for use in meeting rooms.

In distinguish to explicit spoken queries that can be made in commercial Web search engines, our just-in-time-retrieval system must assemble implicit queries from conversational input, which contains a larger number of words than a query.

5.2 Keyword extraction

These result provoked us to design an inventive keyword extraction method for modeling user's information needs from conversations.

As mentioned in the introduction, since even short conversation fragments include words potentially pertaining to several topics, and the ASR transcript adds additional ambiguities, a poor keyword selection method leads to non-informative queries, which often fail to detain users

information needs, thus leading to low recommendation significance and user satisfaction.

The keyword mining method proposed here accounts for a variety of hypothesized topics in a discussion and is accompanied by a clustering technique that formulates several topically-separated queries.

5.3 Topic modeling

Keyword mining has used the occurrence of all words belonging to the same Word Net concept set while the Wikifier system relied on Wikipedia links to compute another alternate to word frequency.

Hazen also applied topic modeling techniques to audio files. In another study, he used PLSA to build a vocabulary, which was then used to rank the words of a discussion record with respect to each topic using a weighted point-wise mutual information scoring function. Moreover, Harwath and Hazen utilized PLSA to characterize the topics of a transcribed conversation, and then ranked words in the transcript based on topical similarity to the topics originate in the conversation.

5.4 Document recommendation

As a first idea, one implicit query can be prepared for each conversation fragment by using as a query all keywords selected by the varied keyword mining technique. However, to improve the getting results, multiple implicit queries can be formulated for each conversation fragment, with the keywords of each cluster from the previous section, prearranged as above (because the search engine used in our system is not sensitive toward order in queries).

VI. MATHEMATICAL EXPRESSION

Assume that T be the collection of total information,
Let U be the user, U= {u1,u2,…..un}
And D be the dataset
ASR= Automatic Speech Recognition
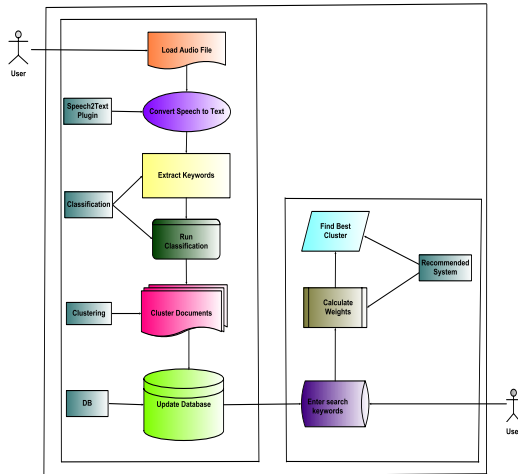VKM = varied keyword mining
KC = Keyword Clustering
QF = Query Formulation
O = Output.
T= {U, D, ASR, VKM, KC, QF, O}.
Procedure: Automatic speech recognition converts the speech and provides output to algorithm that mining keywords from the output of an ASR system.

VII. SYSTEM ARCHITECTURE

The System architecture is shown above. The projected strategies are evaluated in terms of connectedness with relevance speech communication fragments from the Fisher, AMI, and ELEA informal corpora, rated by many human judges. The scores show that our proposal improves more than previous strategies that squash over alone word frequency or topic similarity, and represents a capable resolution for a document recommended system to use in conversations. With make easy of ASR (Automatic speech Recognition) we have a tendency to acknowledge the voice/speech from oral communication and convert it into text format.

We have a tendency to apply keyword mining strategies to mine keyword from the text, the premise of keyword we have a tendency to used Just-in-Time Retrieval Systems to get back data. After completion of RA working we recommend data or information to user.

VIII. CONCLUSION

We have considered a particular form of just-in-time retrieval systems invented for familiar environments, during which they advocate to users documents that are relevant to their data wants. We have a tendency to interior on modelling the users information wants by clarification implicit queries from short oral communication fragments. These queries are supported sets of keywords extracted from the oral communication. We have planned a distinctive keyword mining technique that covers the top range of vital topics in an every fragment. Then, to cut back the repetitive impact on queries of the mixture of topics in a very keyword set, we have a tendency to planned a cluster technique to divide the set of keywords into smaller topically-independent subsets constitute implicit queries.

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