Semantic Based Automatic Check Detection

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ABSTRACT

A vast majority of web services exist without explicit associated semantic descriptions. As a result many services that are relevant to a specific user service request may not be considered during service discovery. In this paper, we address the issue of web service discovery given no explicit service description semantics that match a specific service request. Our approach to semantic based web service discovery involves semantic-based service categorization and semantic enhancement of the service request. We propose a solution for achieving functional level service categorization based on an ontology framework. Additionally, we utilize clustering for accurately classifying the web services based on service functionality.

Service-Oriented Architecture (SOA) is a paradigm for developing next generation distributed systems. SOA introduces an opportunity to build dynamically configurable distributed systems by invoking suitable services at runtime, which makes the systems being more exible to be integrated and easily to be reused. With fast growing numbers of offered services, automatically identifying suitable services becomes a crucial issue. A new and interesting research direction is to select a service which is not only suitable in general but also suitable towards a particular requester's needs and services context at runtime.

Keywords

Statistical approach, PCA, MPCA, FIS, dimensionality reduction, microarray, classification.

1. INTRODUCTION

1.1 "Disambiguating Personal Names on the Web Using Automatically Extracted Key Phrases," D. Bollegala, Y. Matsuo, and M. Ishizuka

When you search for information regarding a particular person on the web, a search engine returns many pages. Some of these pages may be for people with the same name. How can we disambiguate these different people with the same name? This paper presents an unsupervised algorithm which produces unique phrases to disambiguate different people with the same name (i.e. namesakes).

Our algorithm takes in a personal name and outputs multiple sets of phrases which uniquely identify the different namesakes on the web. These phrases could then be added to the query to narrow down the search to a specific namesake. We evaluated the algorithm on a collection of documents retrieved from the Web. Experimental results show a significant improvement over the existing methods proposed for this task.

1.2 "Novel Association Measures Using Web Search with Double Checking," H. Chen, M. Lin, and Y. Wei

A web search with double checking model is proposed to explore the web as a live corpus. Five association measures including variants of Dice, Overlap Ratio, Jaccard, and Cosine, as well as Co-Occurrence Double Check (CODC), are presented. In the experiments on Rubenstein-Goodenough's benchmark data set, the CODC measure achieves correlation coefficient 0.8492, which competes with the performance (0.8914) of the model using WordNet. The experiments on link detection of named entities using the strategies of direct association, association matrix and scalar association matrix verify that the double-check frequencies are reliable. Further study on named entity clustering shows that the five measures are quite useful. In particular, CODC measure is very stable on word-word and name-name experiments.

The application of CODC measure to expand community chains for personal name disambiguation achieves 9.65% and 14.22% increase compared to the system without community expansion. All the experiments illustrate that the novel model of web search with double checking is feasible for mining associations from the web.

1.3 "Automatic Acquisition of Hyponyms from Large Text Corpora," M. Hearst

We describe a method for the automatic acquisition of the hyponymy lexical relation from unrestricted text. Two goals motivate the approach: (i) avoidance of the need for pre-encoded knowledge and (ii) applicability across a wide range of text.

We identify a set of lexico-syntactic patterns that are easily recognizable, that occur frequently and across text genre boundaries, and that indisputably indicate the lexical relation of interest. We describe a method for discovering these patterns and suggest that other lexical relations will also be acquirable in this way.

A subset of the acquisition algorithm is implemented and the results are used to augment and critique the structure of a large hand-built thesaurus. Extensions and applications to areas such as information retrieval are suggested.

1.4 "Organizing and Searching the World Wide Web of Facts - Step One: The One-Million Fact Extraction Challenge," M. Pasca, D. Lin, J. Bigham, A. Lifchits, and A. Jain

Due to the inherent difficulty of processing noisy text, the potential of the Web as a decentralized repository of human knowledge remains largely untapped during Web search. The access to billions of binary relations among named entities would enable new search paradigms and alternative methods for

presenting the search results. A first concrete step towards building large searchable repositories of factual knowledge is to derive such knowledge automatically at large scale from textual documents. Generalized contextual extraction patterns allow for fast iterative progression towards extracting one million facts of a given type (e.g., Person-BornIn-Year) from 100 million Web documents of arbitrary quality. The extraction starts from as few as 10 seed facts, requires no additional input knowledge or annotated text, and emphasizes scale and coverage by avoiding the use of syntactic parsers, named entity recognizers, gazetteers, and similar text processing tools and resources.

1.5 "Using Information Content to Evaluate Semantic Similarity in a Taxonomy," D. Mclean, Y. Li, and Z.A. Bandar

This paper presents a new measure of semantic similarity in an IS-A taxonomy, based on the notion of information content. Experimental evaluation suggests that the measure performs encouragingly well (a correlation of r = 0.79 with a benchmark set of human similarity judgments, with an upper bound of r = 0.90 for human subjects performing the same task), and significantly better than the traditional edge counting approach (r = 0.66)

2. PROBLEM DEFINITION

Dynamic classification does not achieves domain coverage and deleting irrelevant terms resulting in the reduction of noise and increase in the purity of the clusters.Second approach does not address the issue of SVM mapping training data to higher dimensional space, and then finding the maximal marginal hyper plane to separate the data

3. EXISTING SYSTEM

The proposed statistical approach based microarray gene expression classification is implemented along with PCA-based dimensionality reduction and MPCA based dimensionality reduction technique. The following are the machine configuration, which is exploited in our comparative study.

UDDI infrastructure, it is difficult to find services that satisfy the desired functionality. Such service discovery may involve searching a large number of categories to find appropriate services. Therefore, there is a need to categorize web services based on their functional semantics rather than based on the classifications of service providers. Semantic categorization of web services will facilitate service discovery by organizing similar services together. However, this is not sufficient to improve the selection and matching process. Most service descriptions that exist to date are syntactic in nature.

Existing service discovery approaches often adopt keyword-matching technologies to locate the published web services. This syntax-based matchmaking returns discovery results that may not accurately match the given service request. As a result, only a few services that are an exact syntactical match of the service request may be considered for selection. Thus, the discovery process is also constrained by its dependence on human intervention for choosing the appropriate service based on its semantics.

DISADVANTAGES:

- Large number of web services and the distribution of similar services in multiple categories in the existing UDDI infrastructure it is difficult to find services that satisfy the desired functionality.
- Such service discovery may involve searching a large number of categories to find appropriate services.
- Keyword based web service request are the lack of precision and the lack of verifiability.
- Semantics-based approach is necessary not only to reduce this information overload problem, but also to enable more effective and productive services over the web.
- Keyword-based searching and provides an approach in which semantics enhanced web service request overcome these limitations
- Keyword-based web service discovery has proven its usefulness, applying semantics-based web service request strategies should greatly increase the resulting precision of searches and enable new types of web service requests to be formed.

4. PROPOSED SYSTEM:

Enhance the service request with relevant ontology terms and then find the similarity measure of the semantically enhanced service request with the web service description vectors generated in the service. For evaluating this similarity, we employ LSI-based technique that uses cosine measure as the similarity metric. Enhance the service request with relevant ontology terms and then find the similarity measure of the semantically enhanced service request with the web service description vectors generated in the service refinement phase. For evaluating this similarity, we employ LSI-based technique that uses cosine measure as the similarity metric. Semantic categorization of web services, we structure four preclustering techniques. The process of data analysis and clusters' formation is preceded by a preprocessing step that includes stop word removal, stemming, and pruning to reduce the noise in the data. Additionally we also consider addition of related concepts to the data using ontology, deletion of irrelevant terms with and without adding new concepts. Semantic categorization of web services, we structure four preclustering techniques.

ADVANTAGES:

- A simple syntax in terms of a list of keyword phrases
- Open vocabularies wherein the users can use their own words to express their information requirement

5. ALGORITHM USED:

5.1 Support Vector Machines:

This algorithm we proposed for Classification Technique. to identify concepts for a specific domain as well as the relationships between services belonging to a class. This approach is the closest to our approach. Our approach, however, is based on gleaning of semantic utilizing a domain ontology hierarchy. Additionally, from our point of view, this approach does not address the issue of SVM mapping training data to higher dimensional space, and then finding the maximal marginal hyper plane to separate the data.

5.2 Prune Association Patterns Algorithm:

The parameter-based refined set of web services is then matched against an enhanced service request as part of Semantic Similarity-based Matching. A key part of this process involves enhancing the service request. Our approach for web semantic similarity-based

service selection employs ontology-based request enhancement based service matching.

5.3 Mapping Algorithm:

The difference-map algorithm is a search algorithm for general constraint satisfaction problems. It is a meta-algorithm in the sense that it is built from more basic algorithms that perform projections onto constraint sets. From a mathematical perspective, the difference-map algorithm is a dynamical system based on a mapping of Euclidean space. Solutions are encoded as fixed points of the mapping.

6. METHODOLOGY

6.1 Service Categorization:

In our proposed approach, semantic-based categorization of web services is performed at the UDDI that involves semantics augmented classification of web services into functional categories. The semantically related web services are grouped together even though they may be published under different categories within the UDDI.

6.2 Parameter Based Service Refrainment:

Parameter-based service refinement exploits a combination of service descriptions and input and output to narrow the set of appropriate services matching the service request, by combining semantics with syntactic characteristic of a WSDL document. The refined set of web services is then matched against an enhanced service request as part of Semantic Similarity-based Matching.

7. RESULTS AND DISCUSSION

Fig No 1 : Proposed system output

Fig No 2 : Google search result 1 for comparison with proposed system output

Fig No 3 : Google search result 2 for comparison with proposed system output

Fig No 4 : Google search result 3 for comparison with proposed system output

In this paper we have compared various websites to check the relevancy of result generated by proposed system as shown in above figures.

8. CONCLUSION

In this paper we discussed about the web services exist without explicit associated semantic descriptions. As a result many services that are relevant to a specific user service request may not be considered during service discovery. In this paper, we address the issue of web service discovery given no explicit service description semantics that match a specific service request. Our approach to semantic based web service discovery involves semantic-based service categorization and semantic enhancement of the service request. We propose a solution for achieving functional level service categorization based on an ontology framework. Additionally, we utilize clustering for accurately classifying the web services based on service functionality.

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