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Thomas Zell

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Thomas Zell (Signature)

Application No. : 09/683,235
 Confirmation No. : 8303
 Filed : 12/05/2001
 Art Unit : 2172
 Examiner : Isaac M. Woo
 Inventor(s) : Gregory T. Grefenstette et al.
 Title : SYSTEM FOR AUTOMATICALLY GENERATING
 QUERIES
 Docket No. : D/A0A34
 Customer No. : 25453

MAIL STOP NON-FEE AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 C.F.R. 1.111

Sir:

In response to the Office Action of June 6, 2003, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

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Claim 1 (Currently Amended): A method for automatically generating a query from selected document content, comprising:

defining an organized classification of document content with each class in the organized classification of document content having associated therewith a classification label; each classification label corresponding to a category of information in an information retrieval system;

automatically identifying a set of entities in the selected document content for searching additional information related thereto using the information retrieval system;

automatically categorizing the selected document content using the organized classification of document content for assigning the selected document content a classification label from the organized classification of content; and

automatically formulating a ~~the~~ query that ~~restricts to~~ restrict a search at the information retrieval system for information concerning the set of entities to the category of information in the information retrieval system identified by the assigned classification label.

Claim 2 (Original): The method according to claim 1, further comprising limiting the query by adding terms relating to context information surrounding the set of entities in the selected document content.

Claim 3 (Original): The method according to claim 2, wherein the number of terms added is limited to a predefined number.

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Claim 4 (Original): The method according to claim 2, further comprising limiting the query by adding terms defining the assigned classification label.

Claim 5 (Original): The method according to claim 1, wherein the organized classification of document content is defined using a hierarchical organization.

Claim 6 (Original): The method according to claim 1, further comprising using a text categorizer to assign the classification label assigned from the organized classification of content.

Claim 7 (Original): The method according to claim 6, further comprising:
extracting with the text categorizer a set of terms relating to the document content; and
appending to the query ones of the set of terms extracted by the text categorizer to contextualize the query.

Claim 8 (Currently Amended): The method according to claim 7, further comprising abbreviating the set of terms extracted by the text categorizer to a predefined limit of terms number of terms.

Claim 9 (Original): The method according to claim 8, wherein said abbreviating comprises:

extracting noun phrases from the selected document content;

ranking the noun phrases by those that occur most frequently in the document content;

defining a subset of noun phrases by identifying those ranked noun phrases that occur more frequently than a first predefined frequency;

ranking those words in the subset of noun phrases by their frequency of occurrence to define an ordered list of words;

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defining a subset of the ordered list of words by identifying those ranked words that occur more frequently than a second predefined frequency;

re-ranking the subset of words in inverse frequency to their use in the category of information in the information retrieval system identified by the assigned classification label;

using only those highest ranked words in the re-ranked subset of words to define the set of terms appended to the query.

Claim 10 (Original): The method according to claim 1, wherein each class in the organized classification of document content has associated therewith a characteristic vocabulary.

Claim 11 (Original): The method according to claim 10, further comprising ranking results from the query performed at the information retrieval system in accordance with one of the assigned classification label and the characteristic vocabulary.

Claim 12 (Original): The method according to claim 11, using the method in a system for enriching selected content of a document with personalities that identify enrichment themes.

Claim 13 (Original): The method according to claim 1, further comprising automatically identifying the set of entities using a service that recognizes entities of a predefined type.

Claim 14 (Currently Amended): A system for automatically generating a query from selected document content, comprising:

an entity extractor for automatically identifying a set of entities in the selected document content for searching information related thereto using an information retrieval system;

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a categorizer for defining an organized classification of document content with each class in the organization of content having associated therewith a classification label; each classification label corresponding to a category of information in the information retrieval system; the categorizer automatically assigning the selected document content a classification label from the organized classification of content; and

a query generator for automatically formulating ~~a the query that restricts to~~ restrict a search at the information retrieval system for information concerning the set of entities to the category of information in the information retrieval system identified by the assigned classification label.

Claim 15 (Original): The system according to claim 14, further comprising a short length aspect vector generator for generating terms relating to context information surrounding the set of entities in the selected document content; wherein the query generator adds the terms relating to the context information to limit the query.

Claim 16 (Original): The system according to claim 15, wherein the query generator further limits the query by adding terms defining the selected classification label provided by the categorizer.

Claim 17 (Original): The system according to claim 16, further comprising a content manager for enriching the selected document content with results provided from the information retrieval system using the query.

Claim 18 (Currently Amended): An article of manufacture for use in a computer system, comprising:

a memory;

instructions stored in the memory for operating a method for automatically generating a query from selected document content, comprising:

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defining an organized classification of document content with each class in the organized classification of document content having associated therewith a classification label; each classification label corresponding to a category of information in an information retrieval system;

automatically identifying a set of entities in the selected document content for searching information related thereto using the information retrieval system;

automatically categorizing the selected document content using the organized classification of document content for assigning the selected document content a classification label from the organized classification of content; and

automatically formulating ~~a-the query that restricts~~ restrict a search at the information retrieval system for information concerning the set of entities to the category of information in the information retrieval system identified by the assigned classification label.

Claim 19 (Original): The article of manufacture according to claim 18, wherein the instructions stored in the memory further comprise limiting the query by adding terms relating to context information surrounding the set of entities in the selected document content.

Claim 20 (Original): The article of manufacture according to claim 19, wherein the instructions stored in the memory further comprise further limiting the query by adding terms defining the assigned classification label.

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REMARKS

The Office Action of June 6, 2003 has been carefully considered. Reconsideration of this application, as amended, is respectfully requested. Claims 1-20 are pending in this application. Of these, claims 1, 14, and 18 are independent claims. An Amendment faxed March 24, 2003 amended the specification.

This Amendment amends claims 1, 14, and 18 similarly, and amends claim 8 to clarify its language. Support for the amendments to claims 1, 14, and 18 are set forth in claims 6 and 13. Claims 1, 14, and 18 were amended for reasons discussed in more detail below.

1. Response to Rejection Under 35 USC 103

The Office Action on page 2 rejects claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Vu et al. (U.S. Patent No. 6,393,427, hereinafter referred to as Vu) in view of Myers et al. (U.S. Patent No. 6,374,274, hereinafter referred to as Myers) and further in view of Delano (U.S. Patent No. 6,430,558). In response thereto, Applicant Amends independent claims 1, 14, and 18 to more clearly set forth and claim Applicant's invention, and for the reasons discussed below clearly distinguishes over Vu, Myers, and Delano taken singly or in combination.

As set forth in the Amendment faxed 3/24/03, Applicant's claimed invention is directed at a method, system, and article of manufacture for automatically generating a query, as described in detail in Applicant's specification in section F.3 (paragraph numbers 397-426). The system includes an entity extractor, a categorizer, and a query generator. The entity extractor identifies a set of entities in selected document content for searching information related thereto in an information retrieval system. The categorizer defines an organized classification of content with each class in the organization having an associated classification label that corresponds to a category of information in the information retrieval system.

Further in accordance with Applicant's invention, the categorizer assigns the selected document content a classification label from the organized classification of content. The query generator automatically formulates a query concerning the set of entities extracted by the entity extractor. In formulating the query, the query generator restricts the search at the information retrieval system to the category of information in the information retrieval system identified by the assigned

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classification label.

In contrast with Applicant's claimed invention, Vu discloses a method (operating on the client side) for constructing and maintaining (e.g., inserting and deleting documents from), a navigation tree based on existing document classifiers (see Col. 4, lines 19-21). The navigation tree is constructed adaptively to the size of the user's document collection on the client side from a classification tree returned from the existing document classifiers (see Col. 4, lines 29-31).

In further contrast with Applicant's claimed invention, Myers discloses a network database system with subscribing entities (e.g., user computers) that are authorized access to reliable sources of information. "Features that can be included in the system are customization of the documents to reflect sourcing by particular subscribers, automated formatting of the documents for storing in a network database, client access facilitated by subscriber-maintained databases, and the avoidance of cookies remaining on clients' computer hard drives following document access." (see Abstract)

Yet in further contrast with Applicant's claimed invention, Delano discloses a system for collaboratively searching knowledge databases. The system includes a query searcher for conducting search queries of content of the knowledge databases, a search results ranker responsive to the query searcher for providing ranked content search results, and a search result updater for updating the search results responsive to input from other users. (see Abstract)

In particular, the Office Action in rejecting independent claims 1, 14, and 18, cites col. 4, lines 55-67 to col. 5, lines 1-37, of Vu, which discloses a method for determining classification categories of a document that is introduced into a navigation tree. More specifically, col. 5, lines 6-14 of Vu discloses that keywords extracted from documents are used to query a classifier that determines what categories the documents belong to. However, as set forth in Office Action on page 3, lines 12-14 submits "Vu does not explicitly disclose [] identifying a set of entities in selected document content for searching additional information related to using the information retrieval system."

In addition, the sections of Myers (col. 2, lines 28-43, abstract) fail to teach the assertion made in the Office Action at page 3, lines 15-16, that an "entity" as

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recited in Myers is an "entity as defined by Applicant in paragraph 120 of Applicant's specification. Instead, Applicant respectfully submits that "each entity" referred to in the cited section (col. 2, line 30) refers to persons of subscribed client computers (or subscription computers 14, i.e., persons identify documents that are of interest and these documents are made available to clients of that person), whereas in paragraph 120 of Applicant's specification, Applicant defines an entity to mean something recognized in a document. Applicant therefore respectfully submits that Myers fails to disclose or suggest singly or in combination with Vu identifying a set of entities in selected document content for searching additional information related thereto using an information retrieval system.

Furthermore, the cited sections of Delano (col. 6, lines 26-49) fails to disclose or suggest in combination with Myers or Vu the use of a set of entities identified in selected document content to formulate a query that restricts a search to a category of information in an information retrieval system identified using a classification label assigned by categorizing the selected document content. More specifically, in col. 6, lines 26-49 of Delano cited by the Office Action (on page 4, line 4), Delano discloses that a search begins with submission and acceptance of a search topic from a user (see col. 6, line 8) that "consists of any information by which the content in the knowledge base 26 has been indexed, and is typically a text search string with additional text or category filters that may restrict the search to a particular sub-domain and index" (see col. 6, 30-34). However, this section of Delano fails to disclose or suggest singly or in combination with Myers or Vu Applicant's invention in which a query is automatically formulated that is formulated to restrict a search at an information retrieval system for information concerning a set of entities (automatically identified from selected document content) to a category of information in the information retrieval system identified by the assigned classification label (assigned by automatically categorizing the selected document content according to the organized classification of document content).

In summary, Applicant respectfully submits that Vu taken singly or in combination with Myers or Delano fail singly or in combination to disclose Applicant's invention recited in independent claims 1, 14, and 18 that set forth a method, system and article of manufacture therefore for generating a query from selected document content. That is, Vu discloses at col. 5, lines 6-14 that keywords extracted from a

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document are used to determine how to introduce it into a navigation tree, Delano discloses at col. 6, lines 25-49, that a user specifies a search topic for a search with a text search string and text or category filters, and Myers discloses the sharing of documents with clients of subscribing users at col. 2, lines 27-43. In contrast, Applicant's claims *recite automatically generating a query from selected document content, from which both a set of entities and a classification label are automatically identified and assigned*, respectively. The query is formulated to restrict a search at the information retrieval system for information concerning the set of entities to the category of information in the information retrieval system identified by the assigned classification label.

Accordingly, Applicant respectfully submits that independent claims 1, 14, and 18 are patentably distinguishable over Vu taken singly or in combination with Myers and/or Delano. Insofar as claims 2-13, 15-17, and 19-20 are concerned, these claims depend from one of now presumably allowable independent claims 1, 14, and 18 and are also believed to be in allowable condition.

2. Response to Point 11 On Office Action Summary

Point 11 in the Office Action Summary set forth that the proposed drawing corrections filed April 7, 2003 are approved by the Examiner, and that if approved, corrected drawings are required in reply to the Office Action. In response thereto, Applicant submits that the drawings filed on April 7, 2003 are substitute drawings for those already on file. Applicant did not propose corrections to or make any changes in the drawings filed April 7, 2003 when compared to the drawings originally filed with the instant application. Instead, the drawings filed on April 7, 2003 were submitted because Applicant anticipated problems with the quality of the published drawings in US 2003/0069877 A1 because similar quality issues arose in earlier published concurrently filed patent applications. Applicant therefore respectfully believes no new copy of the drawings is required by the Office Action and that Applicant is being responsive thereto.

3. Fee Authorization And Extension Of Time

No additional fee is believed to be required for this amendment or response, however, the undersigned Xerox Corporation attorney hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Corporation

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Deposit Account No. 24-0025. This also constitutes a request for any needed extension of time and authorization to charge all fees therefor to Xerox Corporation Deposit Account No. 24-0025.

4. Conclusion

In view of the foregoing remarks, reconsideration of this application and allowance thereof are earnestly solicited. In the event the Examiner considers a personal contact advantageous to the disposition of this case, the Examiner is hereby requested to call Attorney for Applicant(s), Thomas Zell.

Respectfully submitted,

Thomas Zell

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Date: 9/8/03

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