本刊检索 | GO

高级检索 | 检索说明

| 首 页 | 关于我们 | 投稿指南 | 征订服务 | 诚邀合作 | 留 言 |

数字图书馆

最新目录 | 下期目录 | 过刊浏览 | 高级检索 << | Next Articles >>

UMLS及其在智能检索中的应用

白海燕, **王莉**, **梁冰**

中国科学技术信息研究所 北京 100038

Bai Haiyan, Wang Li, Liang Bing

Institute of Scientific & Technical Information of China, Beijing 100038, China

- 摘要
- 参考文献
- 相关文章

Download: PDF (1KB)　HTML (1KB)　Export: BibTeX or EndNote (RIS)　Supporting Info

摘要 调研UMLS构成和建设特点,重点研究UMLS在检索方面的应用实例,分析归纳UMLS在语义化、智能化检索方面的功能设计、实现方法与实际效果,以期为基于集成式知识组织系统的智能检索应用的场景功能设计、技术开发和实现,提供借鉴和参考。UMLS在智能检索中的应用主要包括:(1)扩展检索,主要有同义词扩展、等级结构扩展和词组切分扩展等方法;(2)语义检索,基于概念和概念之间的关系进行检索和结果内容表达;(3)问答式检索,包括问题分析、文献检索、语句提取、答案生成和语义聚类。

关键词: UMLS 智能检索 扩展查询 语义检索 问答式检索

Abstract: This paper mainly investigates UMLS's composition and characteristics, emphasizes on application cases of UMLS in field of intelligent and semantic retrieval, and analyses the scene designs, technology realization and application effects of these cases, in order to provide references for design and development of intelligent retrieval system based on integrated knowledge organization systems. The application of UMLS in field of intelligence and semantic retrieval mainly includes:(Ⅰ)query expansion, such as synonym expansion, hierarchical structure expansion and phrase segmentation expansion;(Ⅱ)semantic retrieval, based on concepts and relationships between concepts;(Ⅲ)question-answering search, including question analysis, document retrieval, sentence selection and semantic clustering.

Keywords: UMLS, Intelligent retrieval, Expand query, Semantic search, Question answering retrieval

Service
- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- Email Alert
- RSS

作者相关文章
- 白海燕
- 王莉
- 梁冰

引用本文:

白海燕, 王莉, 梁冰 .UMLS及其在智能检索中的应用[J] 现代图书情报技术, 2012,V28(4): 1-9

Bai Haiyan, Wang Li, Liang Bing .UMLS and Its Application in Field of Intelligent Retrieval[J] , 2012,V28(4): 1-9

链接本文:

http://www.infotech.ac.cn/CN/　或　http://www.infotech.ac.cn/CN/Y2012/V28/I4/1

[1]　UMLS Applications[EB/OL].[2012-02-20]. http://www.snu-dhpm.ac.kr/pds/files/UMLS%20Applica- tions_%ED%95%9C%EC%8A%B9%EB%B9%88.pdf.

[2]　U.S. National Library of Medicine.UMLS Applications[EB/OL].[2012-02-20]. http://www.nlm.nih.gov/research/umls/implementation_resources/applications.html.

[3]　Fung K W, Hole W T, Srinivasan S. Who is Using the UMLS and How-Insights from the UMLS User Annual Reports[C]. In: *Proceedings of the 2006 AMIA Annual Symposium*.American Medical Informatics Association,2006: 274-278.

[4]　维基百科.一体化医学语言系统[EB/OL].[2012-02-20].http://zh.wikipedia.org/wiki/一体化医学语言系统.(Wikipedia. Unified Medical Language System [EB/OL].[2012-02-20].http://zh.wikipedia.org/wiki/一体化医学语言系统.)

[5]　U.S. National Library of Medicine.Fact Sheet Unified Medical Language System 　[EB/OL].[2012-02-20].http://www.nlm.nih.gov/pubs/factsheets/umls.html.

[6]　方平.试论一体化医学语言系统(UMLS)超级叙词表的特点[J]. 图书情报工作 ,1998,42(10):26-29,41.(Fang Ping. The Characteristics of the UMLS Metathesaurus[J].*Library and Information Service*,1998,42(10):26-29,41.)

[7]　2011AB UMLS　Release Notes and Bugs[EB/OL].[2012-02-20].

http://www.nlm.nih.gov/research/umls/knowledge_sources/metathesaurus/release/notes.html.

[8] Lindberg D A, Humphreys B L,McCray A T.The Unified Medical Language System[EB/OL].[2012-02-20].http://www.schattauer.de/en/magazine/subject-areas/journals-a-z/methods/contents/archive/issue/1198/manuscript/14376/download.html.

[9] Tilley C,Willis J. The Unified Medical Lanuage System What is it and How to Use It? [OL].[2012-02-20].http://www.cs.rutgers.edu/~mdstone/class/336/umls.pdf.

[10] Kleinsorge R,Willis J,Browne A.UMLS Overview[OL].[2012-02-20].http://www.nlm.nih.gov/research/umls/pdf/AMIA_T12_2006_UMLS.pdf.

[11] Geissbuhler A, Miller R A. Clinical Application of the UMLS in a Computerized Order Entry and Decision-Support System[OL].[2012-02-20].http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2232318/pdf/procamiasymp00005-0356.pdf.

[12] 方平.试论一体化医学语言系统语义网络的结构与特点[J]. 情报学报 ,1999,18(2):129-134.(Fang Ping. Study on Characteristics and Structure of Semantic Network of UMLS Knowledge Sources[J]. *Journal of the China Society for Scientific and Technical Information*,1999,18(2):129-134.)

[13] Current Semantic Types[EB/OL].[2012-02-20].http://www.nlm.nih.gov/research/umls/META3_current_semantic_types.html.

[14] 朱彦慧,腾吉斯.一体化医学语言系统及其对我国的借鉴作用[J]. 中国科技语 ,2010,12(4): 15-18.(Zhu Yanhui,Teng Jisi. The UMLS and Its Reference to Standardize Chinese Medical Terminologies[J]. *China Terminology*,2010,12(4): 15-18.)

[15] 维基百科.专家辞典[EB/OL].[2012-02-20].http://zh.wikipedia.org/wiki/UMLS#.E4.B8.93.E5.AE.B6.E8.BE.9E.E5.85.B8.(Wikipedia. SPECIALIST Lexicon [EB/OL].[2012-02-20]. http://zh.wikipedia.org/wiki/UMLS#.E4.B8.93.E5.AE.B6.E8.BE.9E.E5.85.B8.)

[16] The SPECIALIST NLP Tools[EB/OL].[2012-02-20]. http://lexsrv3.nlm.nih.gov/Specialist/Home/index.html.

[17] UMLS   Reference Manual[EB/OL].[2012-02-20]. http://www.ncbi.nlm.nih.gov/books/NBK9676/.

[18] Aronson A R. Effective Mapping of Biomedical Text to the UMLS Metathesaurus: The MetaMap Program[OL].[2012-02-20].http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2243666/?page=4.

[19] Aronson A R, Lang F M. An Overview of MetaMap: Historical Perspective and Recent Advances[OL].[2012-02-20].http://www.lhncbc.nlm.nih.gov/lhc/docs/published/2010/pub2010033.pdf.

[20] 张云秋,冷伏海.MetaMap的文本映射原理及其对检索效果影响的研究[J]. 情报学报 ,2007,26(3):345-349.(Zhang Yunqiu, Leng Fuhai. Study on the Principle of Text Mapping and Its Effect on Information Retrieval of MetaMap[J]. *Journal of the China Society for Scientific and Technical Information*,2007,26(3):345-349.)

[21] Rindflesch T C, Aronson A R.Semantic Processing for Enhanced Access to Biomedical Knowledge[OL].[2012-02-20].http://skr.nlm.nih.gov/papers/references/semwebapp.5a.pdf.

[22] Rindflesch T C,Fiszman M, Libbus B. Semantic Interpretation for the Biomedical Research Literature[EB/OL].[2012-02-20].http://ai.arizona.edu/mis596a/book_chapters/medinfo/Chapter_14.pdf.

[23] DíazGaliano M C, GarcíaCumbreras M A, MartíinValdivia M T,et al. Query Expansion on Medical Image Retrieval: MeSH vs. UMLS[C]. In:*Proceedings of the 9th Cross-Language Evaluation Forum Conference on Evaluating Systems for Multilingual and Multimodal Information Access*. 2009.

[24] 李丹亚,胡铁军,李军莲,等.中文一体化医学语言系统的构建与应用[J]. 情报杂志 ,2011,30(2):147-151.(Li Danya,Hu Tiejun,Li Junlian,et al. Construction and Application of the Chinese Unified Medical Language System[J].*Journal of Intelligence*,2011,30(2):147-151.)

[25] Aronson A R, Rindflesch T C.Query Expansion Using the UMLS   Metathesaurus   [OL].[2012-02-20].http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2233565/pdf/procamiaafs00001-0521.pdf.

[26] Carlin B G. PubMed Automatic Term Mapping[J].*Journal of the Medical Library Association*,2004,92(2): 168.

[27] NLM   Training:PubMed   [EB/OL].[2012-02-20]. http://www.lib.hiroshima-u.ac.jp/online_tu/db/pm_workbook.pdf.

[28] Hersh W,Price S,Donohoe L.Assessing Thesaurus-based Query Expansion Using the UMLS Metathesaurus[OL].[2012-02-20].http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2244120/pdf/procamiasymp00003-0379.pdf.

[29] Galiano D,Cumbreras G,Valdivia M. SINAI at ImageCLEFmed 2008 [OL].[2012-02-20].http://clef.isti.cnr.it/2008/working_notes/diaz-paperCLEF2008.pdf.

[30] Lu K, Mu X M.Query Expansion Using UMLS Tools for Health Information Retrieval[EB/OL].[2012-02-20].http://www.asis.org/Conferences/AM09/open-proceedings/papers/12.xml.

[31] 张晓林.Semantic Web与基于语义的网络信息检索[J]. 情报学报 ,2002,21(4): 413-420.(Zhang Xiaolin. Semantic Web and Semantic-based Networked Information Retrieval[J]. *Journal of the China Society for Scientific and Technical Information*,2002,21(4): 413-420.)

[32] Chen M. Exploring the Use of Ontological Relations in Information Retrieval[OL].[2012-02-20]. http://ischools.org/images/iConferences/iConference2009_poster_Final.pdf.

[33] Chen M.Using Ontological Relations to Enrich Query Semantics[OL].[2012-02-20].http://mail.asis.org/Conferences/AM09/posters/96.pdf.

[34] Semantic Medline Help[EB/OL].[2012-02-20].http://skr3.nlm.nih.gov/SemMedDemo/jsp/help.jsp.

[35] Kilicoglu H,Fiszman M,Rodriguez A,et al.Semantic MEDLINE: A Web Application for Managing the Results of PubMed Searches[OL].[2012-02-20].http://pathema.jcvi.org/Pathema/presentations/kilicoglu2008.pdf.

[36] 许德山,乔晓东,朱礼军. 问答系统分类研究及新进展[C].见: 第二十一届全国计算机信息管理学术研讨会论文集 ,2007.(Xu Deshan,Qiao Xiaodong,Zhu Lijun. Classification and New Progress of Question-Answering System[C].In:*Proceedings of the 21st National Conference on Computer Information Management*,2007.)

[37] Delbecque T, Jacquemart P,Zweigenbaum P.Indexing UMLS Semantic Types for Medical Question-Answering[OL].[2012-02-20].

http://cluster.cis.drexel.edu:8080/sofia/resources/QA.Data/PDF/M_2005_ENMI_Delbecque_Indexing_UMLS_Semantic_Types_for_Medical_Question-Answering-2817493248/M_2005_ENMI_Delbecque_Indexing_UMLS_Semantic_Types_for_Medical_Question-Answering.pdf.

[38] Wang W M, Hu D W,Feng M,et al.Automatic Clinical Question Answering Based on UMLS Relations[OL].[2012-02-20]. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.126.4658&rep=rep1&type=pdf.

[39] Terol R M, Martínez-Barco P,Palomar M. A Knowledge Based Method for the Medical Question Answering Problem[OL].[2012-02-20].http://rua.ua.es/dspace/bitstream/10045/4511/3/manuscriptR1.pdf.

[40] 李毅,庞景安.基于多层次概念语义网络结构的中文医学信息语义标引体系和语义检索模型研究[J]. 情报学报, 2003,22(4):403-411.(Li Yi,Pang Jingan.Research on Semantic Indexing System and Semantic Retrieval Model for Chinese Medical Information Based on Multilayer Conceptual Semantic Network Structure[J]. *Journal of the China Society for Scientific and Technical Information*,2003,22(4):403-411.) MagSci

[41] 李岩,文健,李舟军.一种改进的基于关系的信息检索技术[J]. 计算机科学 ,2008,35(7):145-150.(Li Yan,Wen Jian,Li Whoujun.Improved Relation-based Information Retrieval Technology[J]. *Computer Science*,2008,35(7):145-150.)

[1]   何继媛, 窦永香, 刘东苏.**大众标注系统中基于本体的语义检索研究综述**[J]. 现代图书情报技术, 2011,27(3): 51-56

[2]   窦永香,苏山佳,杨美姣,陈丽霞.**基于大众标注的P2P语义检索系统模型研究***[J]. 现代图书情报技术, 2010,26(2): 50-55

[3]   陈欣,李晓菲.**基于领域本体的专业文献信息检索研究**[J]. 现代图书情报技术, 2009,25(7-8): 59-64

[4]   薛建武,陈尧清,崔璇.**基于Ajax的异步语义检索实验模型研究**[J]. 现代图书情报技术, 2009,25(5): 6-10

[5]   陈兵,邸晓英.**基于本体和文档重构的语义检索方法***[J]. 现代图书情报技术, 2009,25(12): 42-46

[6]   姜华.**基于本体的语义检索技术研究与实现**[J]. 现代图书情报技术, 2008,24(4): 39-43

[7]   王南,赵捧未,窦永香,秦春秀,赵飞.**图像语义检索中的反馈噪声及其抑制算法研究**[J]. 现代图书情报技术, 2007,2(10): 42-46

[8]   丁晟春,成晓 .**基于用户提问的领域本体知识库的知识检索***[J]. 现代图书情报技术, 2007,2(1): 62-64

[9]   宋琦,薛建武 .**智能检索中基于用户模型的本体映射方法研究**[J]. 现代图书情报技术, 2006,1(9): 29-33

[10]   赵伟,孙万东 .**基于本体的多Agent智能检索系统模型研究***[J]. 现代图书情报技术, 2006,1(5): 27-30

[11]   王曰芬,宋爽,苗露 .**共现分析在知识服务中的应用研究**[J]. 现代图书情报技术, 2006,1(4): 29-34

[12]   白海燕,程变爱,毛燕梅,余育仁,荣毅虹,刘清 .**疾病/诊断领域数字资源整合智能检索系统的设计框架***[J]. 现代图书情报技术, 2006,1(12): 25-28

[13]   何琳,曹玲 .**农业古籍本体的构建及其检索机制研究***[J]. 现代图书情报技术, 2006,1(12): 37-39

[14]   章成志,苏新宁 .**基于知识空间的智能信息检索模型研究**[J]. 现代图书情报技术, 2006,1(12): 29-33

[15]   孔敬.**智能检索模型研究**[J]. 现代图书情报技术, 2005,21(3): 37-42