

Health Resources Digest
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New Medical Search Engines

Ali Baba

Ali Baba helps you to search and visualize protein- and disease-centered information from PubMed. Ali Baba displays the search result in form of a graph -- biological/medical objects such as proteins, diseases, or drugs are nodes; meaningful associations between these are edges. You can find out quickly about interacting proteins, genes with implications in diseases, and tissue specificity of genes.

URL: <http://alibaba.informatik.hu-berlin.de/>

BioText Search Engine

Developed as part of the BioText project at the University of California, Berkeley, the BioText Search Engine is a freely available Web-based application that provides biologists with new ways to access the scientific literature. . Three views allow different types of browsing:

Abstracts (List View): Allows users to search over titles, abstracts and authors. Returns a list of abstracts showing the figures associated with each article.

Captions (List View): Allows users to search over captions. Returns a list of captions and their figures.

Captions (Grid View): Allows users to search over captions. Returns figures and truncated captions in a grid arrangement.

URL: <http://biosearch.berkeley.edu/>

Chilibot

Chilibot searches PubMed literature database (abstracts) about specific relationships between **proteins, genes, or keywords**. The results are returned as a graph. In contrast to the PubMed interface where results are organized based on articles, Chilibot directly presents the key information user is seeking, i.e. sentences containing both of the terms. These sentences are organized into different relationship types based on linguistic analysis of the text. In addition, Chilibot is especially suited to batch process large number of terms (e.g. microarray results). The relationships are summarized into as a graph, with links to sentences describing the relationships, as well as the terms themselves. Many advanced options are available, including color coding the terms, editing the synonyms (e.g. gene/protein names), and context restricted search. It also automatically suggests new hypotheses based on information in the literature. Unregistered users have access to the same functionality as registered users. By

registering, users get passwords to protect their results from other users. In addition, registered users can keep their results as long as they'd like to, while results for unregistered users are deleted after a month to conserve disk space.

URL: <http://www.chilibot.net/>

eTblast

Input a disorder and it searches for articles then ranks the primary authors. The ones with the most publications on the subject are identified as experts. Search engine lets you input an entire paragraph and returns MEDLINE abstracts that are similar to it. "This is something like PubMed's "Related Articles" feature, only better because it runs on your unique set of interests. For example, input the abstract of an unpublished paper or a grant proposal into our engine, and with the touch of a button you'll be able to find every abstract in MEDLINE dealing with your topic".

URL: <http://invention.swmed.edu/etblast/index.shtml>

ExpertMapper

The purpose of the site is to provide names and contact information for physicians listed as noted experts in their field (as a result of your search you get lists of top experts, top institutions and top cities in the USA and around the world, as well as their articles). The entries are based on the number of publications the physician has authored that have been indexed in MEDLINE. The information for each medical condition is listed alphabetically

URL: <http://www.expertmapper.com>

GoldMiner

Searching 94,256 radiology images, GoldMiner provides instant access to images published in selected peer-reviewed radiology journals. This new, web-based system allows viewers to search for images by findings, anatomy, imaging technique, and patient age and sex. "Unlike most internet search engines, ARRS GoldMiner understands medical vocabulary. It uses sophisticated techniques from the U.S. National Library of Medicine (part of NIH) to discover medical concepts in free-text figure captions, and uses that information to quickly retrieve relevant images. ARRS GoldMiner recognizes abbreviations, synonyms, and kinds of diseases." GoldMiner searches by both concepts and keywords.

"Click on the small "thumbnail" image to open a full-size image on the original journal's web site. You can link to the full text of the article as well — just click on the article's name. "

URL: <http://goldminer.arrs.org/>

XplorMed

XplorMed is a word relationship search engine for PubMed. It searches for articles based on word semantics and relationships. The XplorMed server allows you to explore a set of abstracts derived from a MEDLINE search. The system gives you the main associations between the words in groups of abstracts. Then, you can select a subset of your abstracts based on selected groups of related words and iterate your analysis on them. "XplorMed is recommended for cases in which you do not know exactly what are you expecting to find. Your interests may be modified by the results obtained, or you may want to enquire new questions as the analysis develops. Also, the results may suggest you additional words that should be used to expand your query in MEDLINE (e.g., unexpected abbreviations of a protein name, or synonyms of a disease). "

URL: <http://www.ogic.ca/projects/xplormed>

HubMed

HubMed uses information from PubMed's database to produce a search interface focused on browsing, organizing and gathering information from the biomedical literature. Searches can be conducted using the full range of operators available in PubMed; when using the default search options, results will be identical to those of a PubMed search. "Special features of HubMed include date- or relevance-ranked search results; web feeds for regular updates of published literature matching any search; clustering and graphical display of related articles; expansion of query terms; direct export of citation metadata in many formats; linking of keywords to external sources of information; manual categorization (tagging) and storage of interesting articles. When a search is run from the front page, you can choose whether the search results should be ordered by date (starting with the newest articles, as in PubMed) or by relevance (starting with articles that contain the search terms most frequently in the title and/or abstract)." The TouchGraph applet requires that your computer has a version of Java (JRE) greater than version 1.4, and that the Java plugin for your web browser is installed. Once the applet is launched, you should see up to 20 articles displayed as nodes surrounding one central node - the original article. The small 'info' button attached to each node will open a small window containing the title, authors and abstract for that article when clicked, as well as a link back to show that article in HubMed.

URL: <http://www.hubmed.org/help.htm>

iHop (information Hyperlinked Over Proteins)

A network of concurring genes and proteins extends through the scientific literature touching on phenotypes, pathologies and gene function. *iHOP* provides this network as a natural way of accessing millions of PubMed abstracts. By using genes and proteins as hyperlinks between sentences and abstracts, the information in PubMed can be converted into one navigable resource, bringing all advantages of the Internet to scientific literature research.

URL: <http://www.ihop-net.org/UniPub/iHOP/>

PubFocus

PubFocus performs statistical analysis of the PubMed search queries enriched with the additional information gathered from journal rank database and forward referencing database. You can sort results by top ten authors, etc.

URL: <http://www.pubfocus.com/>

ReleMed

ReleMed searches all the data in MEDLINE for the best matches to your query words. Then ReleMed displays the most relevant results first. There are eight relevance levels in ReleMed, with level 1 containing the most relevant articles to your query. The green horizontal bar at the beginning of each citation shows the degree of relevance, the darker the more relevant. When you hover the mouse on the indicator bar, it will show a yellow tip explaining the types of sentence-matches for that article.

URL: <http://www.relemed.com/>

Articles

Hearst MA, Divoli A, Guturu H, et al. BioText Search Engine: beyond abstract search.

Bioinformatics. 2007 Jun 1

“The BioText Search Engine is a freely available Web-based application that provides biologists with new ways to access the scientific literature. One novel feature is the ability to search and browse article figures and their captions”. Free full text.

URL: <http://bioinformatics.oxfordjournals.org/cgi/reprint/btm301v1>

Kahn CE Jr, Thao C. GoldMiner: a radiology image search engine. *AJR Am J*

Roentgenol. 2007 Jun;188(6):1475-8

The GoldMiner search engine provides easy, rapid access to a large library of images and their associated text, and it is freely available for use on the Internet. Free full text.

URL: <http://www.ajronline.org/cgi/content/full/188/6/1475>

Meats E, Brassey J, Heneghan C, Glasziou P. Using the Turning Research Into Practice (TRIP) database: how do clinicians really search? *J Med Libr Assoc*. 2007 Apr;95(2):156-63.

“Web log analysis showed most searches used a single term and no Boolean operators. Observational study revealed users were interested in conducting efficient searches but did not always know how. Therefore, either better training or better search interfaces are required to assist users and enable more effective searching”. Free full text.

URL:

<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=17443248>

Ide NC, Loane RF, Demner-Fushman D. Essie: a concept-based search engine for structured biomedical text. *J Am Med Inform Assoc*. 2007 May-Jun;14(3):253-63

This article describes the algorithms implemented in the Essie search engine that is currently serving several Web sites at the National Library of Medicine. Essie is a phrase-based search engine with term and concept query expansion and probabilistic relevancy ranking. Essie's design is motivated by an observation that query terms are often conceptually related to terms in a document, without actually occurring in the document text. Essie shows that a judicious combination of exploiting document structure, phrase searching, and concept based query expansion is a useful approach for information retrieval in the biomedical domain. Free full text.

URL: <http://www.jamia.org/cgi/content/full/14/3/253>

Can AB, Baykal N. MedicoPort: a medical search engine for all. *Comput Methods Programs Biomed*. 2007 Apr;86(1):73-86

“MedicoPort is a medical search engine designed for the users with no medical expertise. It is enhanced with the domain knowledge obtained from Unified Medical Language System (UMLS) to increase the effectiveness of the searches. The power of the system is based on the ability to understand the semantics of web pages and the user queries. MedicoPort transforms a keyword search into a conceptual search... MedicoPort aims to generate maximum output with semantic value using minimum input from the user. Since MedicoPort is designed to help people seeking information about health on the web, our target users are not medical specialists who can effectively use the special jargon of medicine and access medical databases. Medical experts have the advantage of shrinking the answer set by expressing several terms using medical terminology. MedicoPort provides the same advantage to its users through the automated use of the medical domain knowledge in the background”.

URL: <http://www.sciencedirect.com/science/journal/01692607>

Hanauer DA. EMERSE: the Electronic Medical Record Search Engine. *AMIA Annu Symp Proc.* 2006;:1189

“EMERSE (The Electronic Medical Record Search Engine) is an intuitive, powerful search engine for free-text documents in the electronic medical record. It offers multiple options for creating complex search queries yet has an interface that is easy enough to be used by those with minimal computer experience. EMERSE is ideal for retrospective chart reviews and data abstraction and may have potential for clinical care as well”. Free full text.

URL: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1839717>

Siadaty MS, Shu J, Knaus WA. Relemed: sentence-level search engine with relevance score for the MEDLINE database of biomedical articles. *BMC Med Inform Decis Mak.* 2007 Jan 10;7:1.

“Receiving extraneous articles in response to a query submitted to MEDLINE/PubMed is common. When submitting a multi-word query (which is the majority of queries submitted), the presence of all query words within each article may be a necessary condition for retrieving relevant articles, but not sufficient. Ideally a relationship between the query words in the article is also required. We propose that if two words occur within an article, the probability that a relation between them is explained is higher, when the words occur within adjacent sentences versus remote sentences...Among the >30 retrieval services available for MEDLINE, only a few estimate a relevance score, and none detects and incorporates the relation between the query words as part of the relevance score”. “By using sentence-level matching, Relemed can deliver higher specificity, thus eliminating more false-positive articles. By introducing an appropriate relevance metric, the most relevant articles on which the user wishes to focus are listed first. Relemed also shrinks the displayed text, and hence the time spent scanning the articles”. Free full text.

URL:

<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=17214888>

Herskovic JR, Tanaka LY, Hersh W, Bernstam EV. A day in the life of PubMed: analysis of a typical day's query log. *Am Med Inform Assoc.* 2007 Mar-Apr;14(2):212-20. Epub 2007 Jan 9.

“We performed a lexical and semantic analysis of 2,689,166 queries issued on PubMed over 24 consecutive hours on a typical day... The size of the result sets from a sample of queries showed a bimodal distribution, with peaks at approximately 3 and 100 results, suggesting that a large group of queries was tightly focused and another was broad. Like Web search engine sessions, most PubMed sessions consisted of a single query. However, PubMed queries contained more terms. PubMed's usage profile should be considered when educating users, building user interfaces, and developing future biomedical information retrieval systems”.

URL: <http://www.jamia.org/cgi/content/abstract/14/2/212>

Muin M, Fontelo P. Technical development of PubMed interact: an improved interface for MEDLINE/PubMed searches. *BMC Med Inform Decis Mak.* 2006 Nov 3;6:36.

“The project aims to create an alternative search interface for MEDLINE/PubMed that may provide assistance to the novice user and added convenience to the advanced user. An earlier

version of the project was the 'Slider Interface for MEDLINE/PubMed searches' (SLIM) which provided JavaScript slider bars to control search parameters. In this new version, recent developments in Web-based technologies were implemented. These changes may prove to be even more valuable in enhancing user interactivity through client-side manipulation and management of results." Free full text.

URL:

<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=17083729>

Gaudinat A, Ruch P, Joubert M, et al. Health search engine with e-document analysis for reliable search results. Int J Med Inform. 2006 Jan;75(1):73-85. Epub 2005 Dec 27.

"After a review of the existing practical solution available to the citizen to retrieve eHealth document, the paper describes an original specialized search engine WRAPIN. WRAPIN uses advanced cross lingual information retrieval technologies to check information quality by synthesizing medical concepts, conclusions and references contained in the health literature, to identify accurate, relevant sources... The results of an evaluation conducted on the WRAPIN prototype show that results of the WRAPIN search engine are perceived as informative 65% (59% for a general-purpose search engine), reliable and trustworthy 72% (41% for the other engine) by users... WRAPIN is now in exploitation on the HON web site (<http://www.healthonnet.org>), free of charge. Intended to the citizen it is a good alternative to general-purpose search engines when the user looks up trustworthy health and medical information or wants to check automatically a doubtful content of a Web page".

URL: <http://www.sciencedirect.com/science/journal/13865056>

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Health Resources Digest Forthcoming Topics

[Provisional]

Medical Calculators; Handheld Computers in Healthcare

If you have a suggestion for a Digest topic, or would like to contribute information about Internet resources, then please contact ibra@zadar.net

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