



Web Search and Retrieval

With the ever growing popularity of the Internet, more and more information becomes available to everybody. In fact, the amount of data doubles every six months. However, with a growing amount of online information, it becomes more and more difficult to find exactly what you need. If you want to find something on a website you need very sophisticated search functionality.

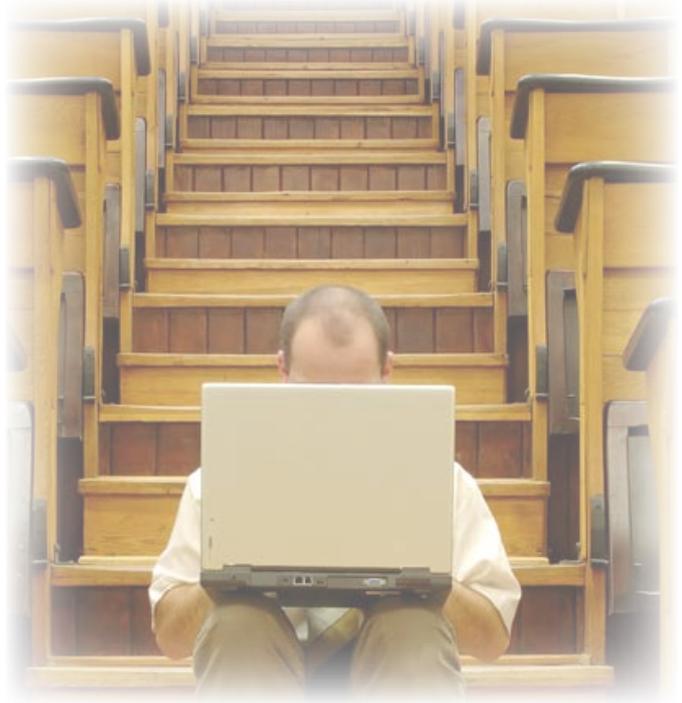
First generation search engines are simply no longer effective enough in finding exactly what you are looking for. These first generation search engines merely distract you with an overload of unwanted information. It is even worse if you want to conduct a search on multiple websites simultaneously.

Infolution Web Search and Retrieval makes users effective and efficient in finding what they look for. It is easy-to-use and intuitive. Associative help guides users quickly through the haystacks to find the needle they are looking for. Unlike first generation technologies where you encounter a high level of noise and frustration, **Infolution Web Search and Retrieval** gives you a high level of precision and recall. It not only finds the relevant information, it also provides the unique capability to automatically summarize any type of document or multiple documents into one. The result can dynamically be tailored to the respective audience or user. For example, an executive might be interested in reading a short summary with a business angle; an engineer might be more interested in a comprehensive summary with a technical angle.

Infolution believes that everyone has unique search requirements. In addition, we believe that the findings of an individual user's search should be private, proprietary and free of clutter. Furthermore, we believe that quality Internet Search should not be considered to be a luxury for the few. It is actually Infolution's vision to unlock the Internet for any user. Everyone should be able to benefit from this new advanced way of search.

The Infolution Web Search and Retrieval solution is perfectly positioned to address these demands. The innovative solution is unique in many ways. Not only does it recognise content, but it also interprets it. The resulting benefits for the user are impressive:

- Speedy access to information.
- Scalability with data sizes
- "Filters" separate relevant from irrelevant data
- Intuitive interfaces make it easy to use
- Automated categorisation of documents
- Automatic content summaries
- Associative help
- High accuracy and relevance



Finding the right information is the first step in a complicated process. In order to benefit from the information it is necessary to analyse it, store it (and be able to retrieve it again), summarize it and ideally also visualise it in an easy to use interface. Given that crucial decisions depend on fast access to information, everything needs to happen at the highest possible speed in order to stay competitive.

Infolution has based its Web Search and Retrieval solution capabilities on an innovative technology that meets all of the above challenges – and even goes beyond:

- A powerful next-generation semantic search and retrieval technology allows "recognising" content and separating important from irrelevant distracting data.
 - The technology incorporates self-learning capabilities improving its effectiveness constantly.
 - The solution is modular to allow for integration of components as needed.
 - The software is based on an open interface making the integration into existing infrastructures extremely easy.
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Example

The account managers of a major **financial services** company in the Netherlands need to be up-to-date with any news related to their clients. They take advantage of a service provided by **HowardsHome**, who have developed advanced internet based solutions to provide a push and a pull capability for them, by monitoring about 40,000 information sources. Even if only one tiny article is written in some remote part of the world, the search capabilities of HowardsHome will find it and report on it.

When you want to buy **real estate**, such as a new home, the first place you go to is the web. One of the more innovative websites specialised in this area is applying advanced search technologies from Infolution to provide their customers a much broader and richer search functionality than their competitors offer. Not only does it allow searching for standard criteria like price or location, it also is able to interpret from the description of the object many other features the customer may be interested in.

The technology

The heart of **Infolution Web Search and Retrieval** is the **Semantic Search Engine** which uses semantic algorithms, statistical rules (Boolean and Bayesian), linguistic technologies and self teaching and learning capabilities.

There are four major components to it:

Harvest: Data collection from various sources is done with intelligent software utilising a semantic analysis of the text surrounding the actual link. This allows Infolution's software to determine the context in which the data stand and ultimately determine the priority of the document for the user.

Analysis: The core of this module is the first ever scalable and commercially viable semantic processor. It operates similar to the human brain understanding and classifying content – and it is capable of learning as it goes along. In other words: not only does it understand the meaning of a user query and the context of a found document, but it can also correlate the two.

Storage and retrieval: An SQL compatible database is the core of the storage module, which is operating on a semantic basis. It allows retrieving more from a document than just the actual content. It allows, for example, summarising a document tailoring it to the intention of the initial request. This is possible because not only facts are stored, but also the relation between them.

Access Control: A conditional module is incorporated that will follow the access control list of the underlying data storage. Infolution uses this information to safeguard that both documents and indexes are only visible to authorised users.



The Infolution engine works continuously, conducting the above four functions in the background, and updating its files as soon as documents are added or modified. Its architecture is such that it provides unlimited scalability and high performance which are critical for searches in large websites or across content rich multiple websites. The engine prepares data for the main functions of the Internet search solution: search and summarize.

Search may be regarded as a matching function: in search, queries are matched with document indexes. Search can be applied to structured and unstructured text documents across multiple languages.

Summarize: Sentences and phrases of a text document are eliminated, leaving only the most relevant sentences. What is relevant, is given by a kind of 'query', that indicates the context (including purpose) of the summarization. Via a scrollbar the user can determine the desired length of the summary. He can even influence the point of view of the summary by weighing the various search parameters.

The user interacts with the system via a simple and highly intuitive browser based interface.

View: It is a rich interactive browser based user interface. It allows for interactive visualization of large information spaces by applying animated graph drawings. The efficiency of users is highly improved through facet navigation and associative help.



The following features of **Infolution Web Search and Retrieval** make it a very powerful solution for companies of any size:

Scalability: Infolution supports up to 8 WWW servers, 128 file locations, 4 CPUs and allows more than 1000 users to share knowledge.

Industry standard platforms: Allows integrating Infolution technology into existing infrastructures. Not only can it be installed on existing servers, but also does it come with a documented open Application Programming Interface (API) to allow for tighter integration into existing software solutions.

Multi-language support: Allows international companies to standardise across borders. In total 72 languages are supported by Infolution.

User Interface: The rich user interface is especially designed for professional use. It supports the user with dynamic context interactive visualisation. The search engine finds the conceptual context of a search and gives the user a number of intelligent alternatives by relating queries. The contexts of the results are shown in an intuitive three-dimensional graph, in which more important concepts appear to be closer to the user than less important ones. Using visual cues, like mouse-over effects and animation, the system clarifies how and why certain concepts appear.

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