

Anatomy Of An Internet Search Engine

For some unfortunate souls SEO is simply the learning of tricks and techniques that, according to their understanding, should propel their site into the top rankings on the major search engines. This understanding of the way SEO works can be effective for a time however it contains one basic flaw ... the rules change. Search engines are in a constant state of evolution in order to keep up with the SEO's in much the same way that Norton, McAfee, AVG or any of the other anti-virus software companies are constantly trying to keep up with the virus writers. Basing your entire websites future on one simple set of rules (read: tricks) about how the search engines will rank your site contains an additional flaw, there are more factors being considered than any SEO is aware of and can confirm. That's right, I will freely admit that there are factors at work that I may not be aware of and even those that I am aware of I cannot with 100% accuracy give you the exact weight they are given in the overall algorithm. Even if I could, the algorithm would change a few weeks later and what's more, hold your hats for this one; there is more than one search engine. So if we cannot base our optimization on a set of hard-and-fast rules what can we do? The key my friends, is not to understand the tricks but rather what they accomplish. Reflecting back on my high school math teach Mr. Barry Nicholl I recall a silly story that had a great impact. One weekend he had the entire class watch Dumbo The Flying Elephant (there was actually going to be a question about it on our test). Why? The lesson we were to get from it is that formulas (like tricks) are the feather in the story. They are unnecessary and yet we hold on to them in the false belief that it is the feather that works and not the logic. Indeed, the tricks and techniques are not what works but rather the logic they follow and that is their shortcoming. **And So What Is Necessary?** To rank a website highly and keep it ranking over time one must optimize it with one primary understanding, that a search engine is a living thing. Obviously this is not to say that search engines have brains, I will leave those tales to Orson Scott Card and other science fiction writers, however their very nature results in a lifelike being with far more storage capacity. If we consider for a moment how a search engine functions; it goes out into the world, follows the road signs and paths to get where it's going, and collects all of the information in its path. From this point, the information is sent back to a group of servers where algorithms are applied in order to determine the importance of specific documents. How are these algorithms generated? They are created by human beings who have a great deal of experience in understanding the fundamentals of the Internet and the documents it contains and who also have the capacity to learn from their mistakes, and update the algorithms accordingly. Essentially we have an entity that collects data, stores it, and then sorts through it to determine what's important which it's happy to share with others and what's unimportant which it keeps tucked away. **So Let's Break It Down ...** To gain a true understanding of what a search engine is, it's simple enough to compare it to the human anatomy as, though not breathing, it contains many of the same core functions required for life. And these are: **The Lungs & Other Vital Organs** - The lungs of a search engine and indeed the vast majority of vital organs are contained within the datacenters in which they are housed. Be it in the form of power, Internet connectivity, etc. As with the human body, we do not generally consider these important in defining who we are, however we're certainly grateful to have them and need them all to function properly. **The Arms & Legs** - Think of the links from the engine itself as the arms and legs. These are the vehicles by which we get where we need to go and retrieve what needs to be accessed. While we don't commonly think of these as functions when we're considering SEO these are the purpose of the entire thing. Much as the human body is designed primarily to keep you mobile and able to access other things, so too is the entire search engine designed primarily to access the outside world. **The Eyes** - The eyes of the search engine are the spiders (AKA robots or crawlers). These are the 1s and 0s that the search engines send out over the Internet to retrieve documents. In the case of all the major search engines the spiders crawl from one page to another following the links, as you would look down various paths along your way. Fortunately for the spiders they are traveling mainly over fiber optic connections and so their ability to travel at light speed enables them to visit all the paths they come across whereas we as mere humans have to be a bit more selective. **The Brain** - The brain of a search engine, like the human brain, is the most complex of its functions and components. The brain must have instinct, must know, and must learn in order to function properly. A search engine (and by search engine we mean the natural listings of the major engines) must also include these critical three components in order to survive. **The Instinct** - The instinct of a search engines is defined in it's core functions, that is the crawling of sites and either the inability to read specific types of data, or the programmed response to ignore files meeting a specific criteria. Even the programmed responses become automated by the engines and thus fall under the category of instinct much the same as the westernized human instinct to jump from a large spider is learned. An infant would probably watch the spider or even eat it meaning this is not an automatic human reaction. The instinct of a search engines is important to understand however once one understands what can and cannot be read and how the spiders will crawl a site this will become instinct for you too and can then safely be stored in the "autopilot" part of your brain. **The Knowing** - Search engines know by crawling. What they know goes far beyond what is commonly perceived by most users, webmasters and SEOs. While the vast storehouse we call the Internet provides billions upon billions of pages of data for the search engines to know they also pick up more than that. Search engines know a number of different methods for storing data, presenting data, prioritizing data and of course, way of tricking the engines themselves. While the search engine spiders are crawling the web they are grabbing the stores of data that exist and sending it back to the datacenters, where that information is processed through existing algorithms and sp@m filters where it will attain a ranking based on the engine's current understanding of the way the Internet and the documents contained within it work. Similar to the way we process an article from a newspaper based on our current understanding of the world, the search engines process and rank documents based on what they understand to be true in the way documents are organized on the Internet.

 The Learning - Once it is understood that search engines rank documents based on a specific understanding of the way the Internet functions, it then follows that in order to insure that new document types and technologies are able to be read and that the algorithm be changed as new understandings of the functionality of the Internet are uncovered a search engine must have the ability to "learn". Aside from a search engine needing the ability to properly spider documents stored in newer technologies, search engines must also have the ability to detect and accurately penalize sp@m and as well as accurately rank websites based on new understandings of the way documents are organized and links arranged. Examples of areas where search engines must learn in an ongoing basis include but are most certainly not limited to:

About the Author

The world conservation union, whose mission is to influence, encourage and assist societies throughout the world to conserve the integrity.

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