

A Survey on Search Engine Optimization and Google's Search Engine Algorithms

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Abstract: The exponential growth of internet technology has led to millions of queries being processed every minute. In order to provide the user with the best result, the search engine uses various algorithms to rule out the unnecessary links from their index and rank the web pages with the relevant keywords. The search engine is a webpage embedded with advanced algorithms and programs that enable a user to find or search any query and provide the user with the most relevant data by identifying the keywords. In order for a website to gain ranks among their highest, the methodology of SEO is followed. SEO, Search Engine Optimization is the process of optimizing the webpage in order to rank up in the respective search engine. Google search engine uses various algorithms such as Hummingbird, Panda, Penguin, etc. to analyze the website and rank them accordingly. In this paper, an attempt is made to address what Search Engine Optimization is and its importance along with various algorithms used by Google for ranking and analyzing a website.

Keywords: Algorithm, Google, Keywords, Query, Rank, Search engine optimization, SEO, Webpage, Website.

I. INTRODUCTION

Search Engine Optimization is an art of optimizing the website in order to increase the popularity of the webpage against all the other competitors [1]. Search Engine Optimization has many factors that help in improving the visibility of the webpage. One of the main objectives of gaining ranks among the tops is to increase the traffic rate, page authority and the domain authority of a website [2].

Domain Authority is a search engine optimization term which is used for the illustration of the popularity and the quality of a whole page whereas the page authority is used for illustrating the same for a specific page [3].

Search Engine Optimization is categorized into two:

- On-Page SEO
On-page SEO is also known as On-Site SEO, is basically optimizing the data or content on the website itself [4].
- Off-Page SEO
Off-page SEO is also known as Off-Site SEO, is basically optimizing the links that are being followed or are being redirected from some source other than the website itself [4].

In order to improve the website and rank best among others in search engines, SEO Analyzers were introduced. Search Engine Optimization analyzers are SEO analytics tools used for identifying the errors in the web pages and much other performance or security related factors that affect the website from being ranked.

A. On-Page SEO

On-Page Search Engine Optimization is directly involved with the webpage itself. On-Page Search Engine Optimization deals with the optimization of individual web pages. It can be very well referred to both the content and the source code of the webpage that is being intended to be optimized [5].

There are many factors that affect the optimization of the webpage, few among them are as follows [7]:

- *Domain Name*
The Domain Name of the website must contain relevant keywords that describe the website in a single glance. This gives the user a better understanding of what the website is intended for.
- *HTML Title*
HTML Title is one of the most important parts of an SEO. HTML Title is the main title that pops up in the search engine when a user searches for a keyword. HTML title must be relevant to the content that is being displayed, giving a user a simple yet powerful explanation of what the webpage is.

- *Alt Text*

When the search engine crawls the website to gather details, it comes across many images, however, it does not identify the image. By using Picture Alt Text, the information regarding the image is given to the crawlers saying what that image is. This, in turn, helps the search engine to provide the user with a better result not only by redirecting them to the right page but also showing them relevant images in the image searches.

- *Heading*

Headings are generally, different size of texts used to identify difference on the web pages by giving the user a better understanding of the information that is being displayed on the website which can be arranged based on the priority. The most relevant data that contains the keywords are the heading text within<h1>. Text sizes vary from<h1>to h<6>

- *Content*

Content is the body of the webpage that encapsulates the most vital information. Many analytics shows that the page with more than 2500 words has a better chance of gaining more views than other pages. And having duplicate content or plagiarism can drastically affect the page authority which can lead to a lower domain authority.

- *Loading Time*

Loading Time is one of the key factors that determine the number of users visiting the website. According to many analytics, 50% of users leave the page or move to others pages if the page takes more than 5 seconds to load.

- *Broken Links*

Broken Links are the most vicious and common errors found on a website that drastically affect and determines the domain authority or the page authority of a website. The higher the number of broken links the lower the domain authority is. For example, error 404 is a broken link i.e., page not found. These are errors that heavily affect the domain authority.

B. Off-Page SEO

Unlike On-page SEO, Off-Page Search Engine Optimization is not directly involved with the webpage however it involves all the links that are being redirected from or are being redirected to. There are mainly two factors that affect the optimization of the webpage, they are as follows [8]:

- *Inter Links*

InterLinks are also known as backlinks. These interlinks help the website in generating traffic by getting redirected from other related websites. Many users, however, buy these backlinks to strengthen their domain authority

even though its considered illegal by Google's search engine. However, the user from whom the page is being redirected to can restricts the flow or the crawling of data by telling search engines not to count some of their links to other pages with the help of "nofollow" tag.

- *Social Links*

Social Links helps the website in generating traffic by getting traffic from social media websites such as Facebook, Twitter, Instagram, LinkedIn, etc. when a user click on any ads or links that are posted online on social websites, it gains them page authority as they are all being redirected to their target page.

II. TYPES OF SEARCH ENGINE OPTIMIZATION

Just like all other technologies that are available, search engine optimization can also be misused for various vicious reasons and thus the SEO is also categorized into two types [9]:

- White-Hat SEO
- Black-Hat SEO

A. White-Hat SEO

White-Hat SEO is also known as Ethical SEO, as the website is optimized for long-term results by following all the rules and regulations based on the guidelines [11]. Though Search Engine Optimization like all other technology can be easily misused to generate traffic. By optimizing the website based on all the guidelines, the result obtained in an instant will be negligible. However, on long-term, these perfectly optimized websites can generate a better revenue and will last much longer than any other fake or poorly optimized websites [10].

B. Black-Hat SEO

White-Hat SEO being the proper way of optimizing the website, Black-Hat SEO is a methodology used to manipulate the search engine algorithms to gain huge traffic without actually having any relevant content or data. However, these methodologies that are being followed are not accepted by any search engines [12]. Though by following this methodology the website may gain huge traffic or organic data, the risk of the website being removed from the search engine index is always unwavering.

The most popular techniques used in Black-Hat SEO are as follows [13]:

- *Hidden Links/Texts*

Links/Texts that are extremely small or invisible i.e., same color as that of the background. This text cannot be viewed by the user. However, if these texts are hidden by blending them with the background, they can be viewed by selecting those texts.

- *Cloaking*
The webpage that is being crawled by the search engine will be different from what is being displayed to the user.
- *Link Farming*
Creating many websites that act as backlinks to a particular website deceiving the search engine in thinking it is an authentic website.
- *Doorway/Gateway Pages*
These are web pages built to rank for specific keywords. Once the users reach this page, the users are redirected to another page which might be used for service or product promotion.
- *Keyword Stacking and Keyword Stuffing*
This was one of the most popular techniques used, where the keywords are used multiple times in the content or other irrelevant keywords used to gain maximum views and organic traffic.
- *Bait-and-Switch or Page Swapping*
Once the initial page gets ranked the webpage is completely changed. Hence, the ranked page may now contain some other irrelevant data/information.
- *Typosquatting*
The domain name is registered similar to that of an existing domain with a minor change in the domain name.

III. HOW GOOGLE SEARCH ENGINE WORKS

Google being the most popular and the most powerful search engine of them all, integrates many advanced algorithms along with machine learning making their AI system a state of the art technology that not only understands what the user needs but also suggests information that blends their need and taste to provide the most accurate result for the query.

“According to the latest net market share report (January 2018) 74.52% of searches were powered by Google and only 7.98% by Bing [14].”

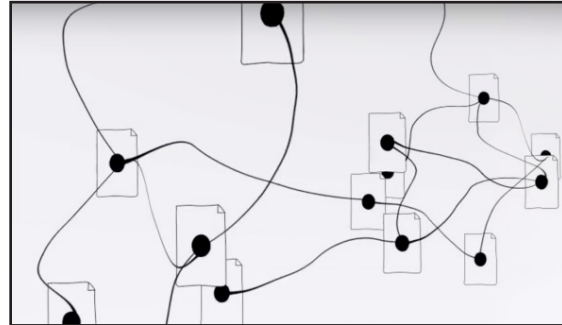
Google search engine is segregated into three parts [15].

A. Crawling

Initially, when Google started crawling, they crawled the webpage every 30 days. After this period of time, they push the data for indexing which took them another week to process. Later in 2003, as a part of Google Freds update, the crawling process was changed. In this process, a significantly huge volume of the web is crawled every day. Imagine breaking the web into many small parts of volumes, now crawling these parts of the web and refreshing them every night instead of waiting for everything to finish, makes the indexing process very fast. So, at any given point of time index will always be updated.

This is done by a software program called Spyder.

Spyder software program starts by fetching few web pages and then they follow the links on those pages, and fetch the pages that they point to and follow all the



Links on those pages, and fetch the pages they link to and so on discovering a huge collection of web pages all linked into the Google engine like a spider web.

B. Indexing

Indexing is the process of optimizing the crawled pages alphabetically. For an example, consider the keyword “Search Engine Optimization”.

Keywords	Search	Engine	Optimization
Index Numbers	1	4	2
	4	3	3
	50	54	4
	200	985	56
	985	1050	985

Here the individual keywords are placed in multiple index locations. When a user searches for “Search Engine Optimization”, Google searches for all the index associated with each keyword and matches all the index that contain these keywords placed adjacently. In this example, Index Number 4 and 985 match with the keyword “Search Engine Optimization.” Which means that these are the index that contains the keyword “Search Engine Optimization.” Now the results that are being displayed will be out of these acquired indexes. This is how Google indexing work.

C. Result

Google’s software searches their index to find every page that includes those search terms and finds hundreds of thousands of possible results. Displaying the most accurate page is very tricky. Google decide which documents that the user really wants by asking more than 200 questions, such as,

- How many times does this page contain this keyword?
- Is the searched keyword present in the Title or in the URL?

- Are the keywords directly adjacent?
- Is the acquired page from a quality website?
- Is the acquired page a spam?
- whats the pages PageRank (Googles Algorithm)?
- How many outside links point to the acquired page?
- And many more.....

By combining all these factors together, Google produces an overall score for each page. On the basis of this page score, Google provides the user with the topmost search results.

IV. GOOGLE SEARCH ENGINE ALGORITHMS

Google has many algorithms that determine the quality and the importance of the website. These algorithms differentiate the websites based on what the website is designed for [16].

There are mainly eight Google algorithms that play a major role in SEO [17]:

- PageRank
- Hummingbird
- RankBrain
- Panda
- Penguin
- Pigeon
- Possum
- Mobile

A. PageRank

The PageRank Algorithm was invented by the two co-founders of Google Lawrence Page and Sergey Brin [19].

The Algorithm is described as [18],

$$PR(A) = (1-d) + d (PR(T1)/C(T1) + \dots + PR(Tn)/C(Tn))$$

where,

- PR(A) is the PageRank of page A
- PR(Ti) is the PageRank of pages Ti which link to page A
- d is a damping factor which can be set between 0 and 1
- C(Ti) is the number of outbound links on page Ti

PageRank is nothing but the number of websites linked to a particular website and how important those links are.

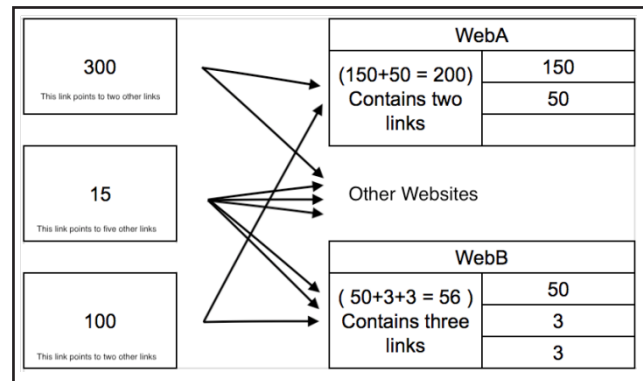
Let's say there are two websites, WebA and WebB with 20 and 10 links linked to them respectively. It is not compulsory that WebA with 20 links should have a higher PageRank score. The 10 links that the WebB have could be highly reputed than that of the 20 links, this makes the PageRank score of WebB higher though it only has 10 links.

Let's illustrate this with an example:

There are three websites here with the PageRank of 300, 15 and 100 having 2, 5 and 2 out links respectively. As the number of out links increase the PageRank is divided equally among all these out links. Here Website has 2 backlinks with a total PageRank of 200 and Website WebB has 3 backlinks with a total PageRank of 56. This is how Google understands how important or reputed a website is.

B. Hummingbird

When Google turned 15, they introduced a new update known as Hummingbird. Hummingbird is an advanced algorithm that deals with real-time answers to long-tail queries [20]. This algorithm was designed to give a better response to the voice queries. It responds with precision facts and statistics to give the most accurate answers. Traditional search engines focus on matching individual keywords and relate them to the web pages that contain these keywords. However, by using these algorithms, long tail queries such as "where can I buy the latest Xbox scorpion near me?" Can be processed within milliseconds.



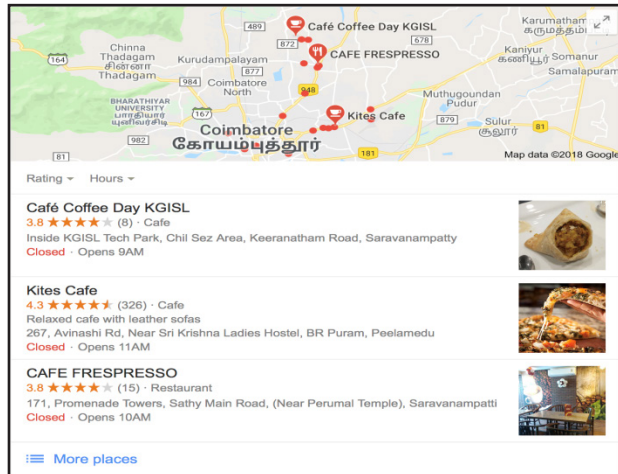
C. RankBrain

RankBrain is a component of a search engine that mainly deals with the long tail queries. Its a part of hummingbird algorithm which supports the algorithm by simplifying the long tail queries. The RankBrain algorithm is an AI system with multiple neural networks that analyze the queries to give the best result [21].

For example,

- “Movies on Netflix“
- “Best movies in Netflix“
- “What are the best movies on Netflix“
- “Best Netflix movies“
- “Which movie to watch on Netflix“
- “Netflix movies“
- “Netflix best movies“
- “Best rated movies on Netflix“

These are few queries that literally means the same thing. There are many possibilities in which a user can ask a long tail query which means the same thing. However, there are certain scenarios where Google search engine might not provide the user with any search results, this is where the RankBrains AI Algorithms comes into play. When a user searches for a unique query that has never been searched in Google before, RankBrain analyses these queries and finds the pages that are at least one most related to the query searched.



D. Panda

In 2010, the quality of Google's search result dropped drastically as the content farming kept on increasing. To solve this critical issue, in 2011, Google announced the launch of Google Panda Update [22].

Google Panda Update is an algorithm designed to analyze websites and terminate all the websites whose quality is poor from making their way into Google's top search results [22].

Google Panda Update mainly deals with On-page related analysis. Google panda analyzes the entire website checking the quality and the content. It mainly checks for duplicate content to see if the website contains multiple pages with the same content. Google Panda also analyzes the CTR and the bounce rate.

E. Penguin

In April 2012, Google launched their new algorithm update named Penguin [24]. Google's Penguin updates mostly deal with the external linking and bad link profile. Which means buying links can also get the website blacklisted. Anchor Text is one of the few things that the Google's Penguin update deals with i.e., Let's assume that the website has a single keyword that is an anchor text. Now to this anchor text if multiple or poor links are associated, Penguin Algorithm checks the link profile

to see if it exceeds the maximum threshold percentage. If so, the website will be removed from the Google's index [25].

Other features of Google Penguin update are to check the web pages for keyword stuffing or cloaking. There are many websites that randomly add keywords to the bottom of the page to gain maximum organic traffic, however, it will not have to do anything with the user's query. This update also affects the web pages that are cloaked, in webpage cloaking the pages that are displayed to the bots when they are being crawled will be completely different from what it is being displayed to the user. Google's Penguin update helps the Google search engine by eliminating such websites from the Google's index.

F. Pigeon

Google's Pigeon update was launched in July 2014 exclusively for U.S. English results, later expanding their regions [26]. Google Pigeon update is an algorithm that analyzes the user's query and fetches the most relevant and accurate local search results and also prevents spam from ranking as well. When a user searches for some location nearby, Google provides the user with the best relevant data using maps in 3-pack structure [27].

Google's Pigeon update mainly focuses on the user side. Where the user is?, What are the best results nearby?, If exact result not found then is there a similar result nearby? Etc. This helps the user in finding local locations very easily.

G. Possum

In September 2016, Google launched a new update named Possum [28]. Google's Possum update is somewhat similar to that of Google's Pigeon update. Google's Pigeon update mainly focuses on the user side whereas Google's Possum update is more business oriented. This update helps the business expand and helps in ranking. In Pigeon update, when a user searches for a service nearby, Google provides them with all the services that are registered at their location. However, there may be many other services available in that specific location but their physical location may be registered someplace else. After the Possum update, these services that are available in the location nearby will also be displayed in the search results when the user searches for services nearby, even though their physical address may be registered someplace else [29].

H. Mobile

Google's Mobile update was launched on 21st of April 2015, Focusing only on handheld devices to ensure much better speed and stability for the user [30]. On the very same day, Google gave three factors that would impact through this update.

They stated that this would only

- Affect the search ranking on mobile devices.
- Affects search results in all languages globally.
- And this update affects all the pages rather than the entire site.

This update ranked pages based on if the websites are supported by the mobile devices. The decisions were pretty straightforward, either the website supports or it does not [31].

V. CONCLUSION

In this paper, we have overviewed the concepts of Search Engine Optimization and also illustrated how the Google's Search engine works. Furthermore, we have also illustrated different Algorithms that are used by the Google to analyze the website and rank them accordingly in their index

REFERENCES

- [1] <http://slideplayer.com/slide/10698282/> <https://www.webopedia.com/TERM/S/SEO.html>
- [2] <https://neilpatel.com/what-is-seo/>
- [3] <https://seopressor.com/blog/how-to-increase-domain-authority/>
- [4] <http://www.digitalthirdcoast.net/blog/on-page-off-page-seo-difference>
- [5] <https://www.blogginglove.com/improve-domain-authority/>
- [6] https://en.ryte.com/wiki/Search_Engine_Optimization
- [7] <https://backlinko.com/on-page-seo>
- [8] <https://thrivehive.com/on-page-vs-off-page-seo/>
- [9] <http://www.differencebetween.info/difference-between-white-hat-and-black-hat-seo>
- [10] <https://blog.monitorbacklinks.com/seo/search-engine-optimization-tips/>
- [11] <https://en.ryte.com/magazine/search-engine-optimization-beginners-guide-seo>
- [12] <http://www.optimizationtheory.com/black-hat-white-hat-seo/>
- [13] <https://designhammer.com/blog/17-black-hat-seo-techniques-avoid>
- [14] <https://www.reliablesoft.net/top-10-search-engines-in-the-world/>
- [15] https://www.tutorialspoint.com/internet_technologies/search_engines.htm
- [16] <http://www.onlinestartupbox.com/news/seo-works-with-algorithms-how-an-algorithm-update-impacts-your-sites-ranking/>
- [17] <https://searchengineland.com/8-major-google-algorithm-updates-explained-282627>
- [18] <http://pr.efactory.de/e-pagerank-algorithm.shtml>
- [19] <http://www.math.cornell.edu/~mec/Winter2009/RalucaRemus/Lecture3/lecture3.html>
- [20] <http://www.tomshardware.co.uk/google-search-google-now-algorithm,news-45634.html>
- [21] <https://www.1and1.co.uk/digitalguide/online-marketing/search-engine-marketing/what-is-rankbrain/>
- [22] <https://www.fatbit.com/fab/google-improved-search-changed-seo-last-17-years/>
- [23] <https://moz.com/learn/seo/google-panda>
- [24] <https://searchengineland.com/library/google/google-penguin-update>
- [25] <https://blog.monitorbacklinks.com/seo/prevent-a-google-penguin-penalty/>
- [26] <https://searchengineland.com/library/google/google-pigeon-update>
- [27] <https://www.link-assistant.com/news/google-pigeon-update.html>
- [28] <https://www.performics.com/the-5-major-changes-of-googles-possum-local-update>
- [29] <https://www.seo-nerd.com/en/google-update-history>
- [30] <https://searchengineland.com/library/google/google-mobile-friendly-update>
- [31] <https://www.searchenginejournal.com/google-algorithm-history/mobile-friendly-update/>
- [32] <https://moz.com/beginners-guide-to-seo>
- [33] <https://blog.kissmetrics.com/simple-guide-to-seo/>
- [34] <http://slideplayer.com/slide/10698282/> <https://www.webopedia.com/TERM/S/SEO.html>
- [35] <https://www.hobo-web.co.uk/seo-tutorial/>
- [36] <https://www.wordstream.com/blog/ws/2015/04/30/seo-basics>
- [37] <https://moz.com/blog/category/on-page-seo>
- [38] <https://moz.com/learn/seo/on-page-factors>
- [39] <https://www.searchenginejournal.com/everything-need-know-page-seo/173577/>
- [40] <http://onlineincometeacher.com/traffic/on-page-seo-techniques/>
- [41] <https://www.reliablesoft.net/what-is-off-page-seo/>
- [42] <https://moz.com/learn/seo/off-site-seo>
- [43] https://www.webopedia.com/TERM/B/Black_Hat_SEO.html
- [44] <https://www.wordstream.com/black-hat-seo>
- [45] <https://unamo.com/blog/seo/8-risky-black-hat-seo-techniques-used-today>

- [46] <https://cognitiveseo.com/blog/12169/44-black-hat-seo-techniques/>
- [47] <https://www.blackhatworld.com/forums/black-hat-seo.28/>
- [48] <https://www.quora.com/What-is-white-hat-SEO-1>
- [49] https://www.webopedia.com/TERM/W/White_Hat_SEO.html
- [50] <https://www.blackhatworld.com/seo/journey-blackhat-get-legit-gtfo.504328/>
- [51] <https://www.youtube.com/watch?v=4uToFD7bXM>
- [52] <https://www.youtube.com/watch?v=KyCYyoGusqs>
- [53] <https://www.quora.com/How-do-Google-searches-work>
- [54] <https://moz.com/beginners-guide-to-seo/how-search-engines-operate>
- [55] <https://support.google.com/webmasters/answer/70897?hl=en>
- [56] <https://www.youtube.com/watch?v=BNHR6IQJGZs>
- [57] <https://www.google.co.in/insidesearch/howsearchworks/thestory/>
- [58] <https://computer.howstuffworks.com/internet/basics/google1.htm>
- [59] <https://searchengineland.com/everything-need-know-googles-possum-algorithm-update-258900>
- [60] <https://moz.com/learn/seo/google-possum>
- [61] <https://www.revlocal.com/blog/google-news/what-you-need-to-know-about-google-s-possum-algorithm-update>
- [62] <https://www.quicksprout.com/2017/01/25/how-seo-has-changed-with-the-possum-update/>
- [63] <https://moz.com/google-algorithm-change>
- [64] <https://searchengineland.com/library/google/google-algorithm-updates>
- [65] <https://www.seroundtable.com/category/google-updates>
- [66] <https://www.searchenginejournal.com/google-algorithm-history/>
- [67] <https://www.searchenginejournal.com/google-confirms-maccabees-algorithm-update/228901/>
- [68] <https://searchengineland.com/google-hummingbird-172816>
- [69] <https://searchengineland.com/library/google/hummingbird-google>
- [70] <https://moz.com/learn/seo/google-hummingbird>
- [71] <https://unamo.com/blog/seo/google-hummingbird-update>
- [72] <https://www.searchenginejournal.com/seo-guide/panda-penguin-hummingbird/>
- [73] <https://www.searchenginejournal.com/google-algorithm-history/hummingbird-update/>
- [74] <https://searchengineland.com/library/google/google-panda-update>
- [75] <https://www.seo-theory.com/google-panda/>
- [76] <https://www.searchenginejournal.com/google-algorithm-history/panda-update/>
- [77] <http://seoupdates.info/difference-between-google-panda-and-google-penguin/>
- [78] <https://moz.com/learn/seo/google-penguin>
- [79] <https://www.searchenginejournal.com/google-algorithm-history/penguin-update/>
- [80] <https://webmasters.googleblog.com/2016/09/penguin-is-now-part-of-our-core.html>
- [81] <https://moz.com/blog/google-algorithm-cheat-sheet-panda-penguin-hummingbird>
- [82] <https://www.mainstreethost.com/blog/panda-penguin-guide-google-algorithm/>
- [83] <https://moz.com/learn/seo/google-pigeon>
- [84] <https://www.searchenginejournal.com/google-algorithm-history/pigeon-update/>
- [85] <https://www.equinetacademy.com/seo-tutorial-step-step-search-engine-optimization-guide/>
- [86] <https://smepals.com/seo/seo-complete-guide-optimizing-search/>
- [87] <https://www.quicksprout.com/2014/05/19/5-practical-steps-to-improving-your-websites-domain-authority/>
- [88] <https://www.spectrumnetdesigns.com/domain-authority-search-engine-optimization/>
- [89] <https://hubpages.com/business/What-Is-Search-Engine-Optimization-SEO-For-Beginners>
- [90] <http://www.activesearchresults.com/articles/850262.php>
- [91] <https://searchengineland.com/seo-website-design-everything-need-know-272899>
- [92] <http://www.wisegeek.com/what-is-search-engine-optimization.htm>
- [93] <https://neilpatel.com/blog/seo-copywriting-how-to-write-content-for-people-and-optimize-for-google-2/>
- [94] <https://www.hongkiat.com/blog/beginners-guide-to-seo-best-practices-part-13/>
- [95] <https://www.sitepoint.com/seven-mistakes-that-make-websites-slow/>
- [96] <https://www.alltechnerd.com/25-best-seo-free-tools-website-analyzers-using/>
- [97] <https://www.relevance.com/top-5-seo-tools-for-complete-website-analysis/>

- [98] <https://ccm.net/faq/48467-best-online-tools-for-better-seo>
- [99] <http://www.webgnomes.org/blog/10-seo-analysis-tools/>
- [100] <https://neilpatel.com/blog/improve-google-rankings-without-getting-penalized/>
- [101] <https://www.submittedgeseo.com/on-page-optimization.html>
- [102] <https://zagoumenov.com/blog/on-page-seo-guide/>
- [103] <https://www.shoutmeloud.com/on-page-seo.html>
- [104] <https://neilpatel.com/blog/title-tags-seo/>
- [105] <https://www.bizmove.com/internet/on-page-optimization.htm>
- [106] <https://www.lean-labs.com/blog/landing-pages-vs.-site-pages-in-hubspot-how-to-use-each>
- [107] https://en.ryte.com/wiki/Meta_Title
- [108] <https://seo-hacker.com/server-errors-affect-seo-efforts/>
- [109] <https://www.wix.com/blog/2017/09/how-to-write-seo-title-tag/>
- [110] <http://www.nateconnect.com/2017/12/backlinks-and-seo.html>
- [111] <https://en.wikipedia.org/wiki/Wikipedia:Rfd>
- [112] <http://www.seosiren.com/the-art-of-seo-interlinking/>
- [113] <https://moz.com/blog/how-should-you-handle-expired-content>
- [114] <https://www.wix.com/blog/2018/01/seo-glossary-terms-you-need-to-know/>
- [115] <https://www.makeuseof.com/tag/13-alternative-search-engines-that-find-what-google-cant/>
- [116] <https://www.deepwebsiteslinks.com/illegal-search-engines/>
- [117] <http://www.seosandwich.com/p/seo-terms.html>
- [118] <https://www.stepforth.com/blog/2008/redirects-permanent-301-vs-temporary-302/>
- [119] <https://www.lyfemarketing.com/blog/seo-vs-sem/>
- [120] <https://www.wordtracker.com/academy/seo/page-optimization/how-to-optimize-web-page>
- [121] <http://www.tech-faq.com/renaming-domains.html>
- [122] <https://www.seolium.com/seo/learn/is-seo-spam/>
- [123] <http://www.wisegeek.com/what-is-search-engine-optimization.htm>
- [124] <https://technicalseo.com/what-is-seo/>
- [125] <https://www.upwork.com/hiring/marketing/seo-search-engine-optimization/>
- [126] <https://www.smartinsights.com/search-engine-optimisation-seo/seo-analytics/what-are-the-best-seo-tools-in-2016/>
- [127] <https://www.crazyegg.com/blog/targeted-keyword-research-without-googles-keyword-tool/>
- [128] <https://moz.com/beginners-guide-to-seo/keyword-research>
- [129] <http://www.zerodollartips.com/best-search-engines-in-the-world/>
- [130] <https://beebom.com/google-alternatives/>
- [131] <https://www.makeuseof.com/tag/how-do-search-engines-work-makeuseof-explains/>
- [132] <http://boulderseomarketing.com/seo-keywords-step-by-step-keyword-research-guide/>
- [133] <https://optinmonster.com/keyword-research-101-how-to-choose-the-right-terms-for-google/>
- [134] <https://dynamapper.com/blog/21-sitemaps-and-seo/279-are-keywords-still-important-for-seo>
- [135] <https://seopressor.com/blog/google-ranking-factors-according-to-google-patent/>
- [136] <http://infolab.stanford.edu/~backrub/google.html>
- [137] <https://searchengineland.com/library/google/google-panda-update>
- [138] <http://www.seoworld24x7.com/google-pagerank-checker>
- [139] <https://www.latenightbirds.com/blog/google-ranking-factors/>