The Concept and Importance of Evolutionary Computation

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Abstract- *Evolutionary computation is one of the branch of artificial intelligence and it is inseparable from it. Evolutionary computation is based on evolutional algorithm methods which aimed to solve different real world problems. It is based on regeneration of data and based on random methods to change and replace data in a system like personal computer, cloud, Google drive and other data store. In this paper, we will discuss in details about its functionality and importance. Also how evolution computing is moving forward and replacing place of many in the world of technologies. We will also focus on different technologies of evolution computing to use particularly with image processing, cloud computing and grid computing.*

Keywords- Artificial intelligence, database, evolution algorithm, grid computing.

I. INTRODUCTION

The speed of technological innovation is so rapid that the role of strategists and planners is at best relegated to educated guesswork. In numerous business sectors that rely on being at the cutting edge of technological innovation, not least the digital sector, one of the major problems facing strategists and planners is that the speed of change renders any accurate mid to long term planning at the mercy of chance. This is not to say that business should throw their hands up in the air or bury their heads in the sand, aghast at the fruitlessness of any long term direction, but more a requirement to understand there is no hard and fast solution to rapid evolution, no pause button that will allow for the collective catching of commercial breath. Indeed, the best advice to all those who like to ride the technological wave is to understand that this is the way it is, to be adaptable and to recognise that the best way to stay ahead is to go with the flow and see where the current takes you.Of course, this is not to recommend a universally cavalier attitude to any planning element. However, one particularly relevant case study is business or brand use of social media, as a medium that continually pushes the envelope and places itself firmly at the crest of the innovation wave [1-5].

II. A CASE STUDY

Perhaps the most obvious case study of success would be Facebook itself, in that here is a new business (and it's worth remembering that really, it is only a few years old) that was borne out of the bedroom; in essence to create an online yearbook of Harvard students. Now, just a few years later, that bedroom project is without question the biggest personal and commercial social medium the world has seen. Back in that Harvard bedroom a few years back, if you had asked Mark Zuckerburg whether this was his plan, even at his most optimistic he would surely not have predicted the level of success. There are of course a number of reasons behind that success, but one crucial element is that Facebook has listened to consumer demand and responded accordingly. Not exactly rocket-science but the embracement of this laissez-faire approach and ability to tailor the business to consumer demand is one of the key reasons that the social network now has over 800million users across the globe.

Brands and businesses that use the platform itself would do well to heed the Facebook approach in building their customer acquisition, engagement and mobilisation. Certainly, it does no harm to have a strong brand presence behind you, but it is primarily through listening and tailoring the response accordingly that brands will achieve the greatest resonance with consumers.

III. FROM A TACTICAL PERSPECTIVE

Facebook itself has introduced a number of technical elements (i.e. the EdgeRank algorithm) to ensure brands and businesses are giving consumers what they want. Whilst Facebook itself has not been exactly overt in flagging the introduction of EdgeRank (no doubt reticent to answer tough questions from brands that had invested not insubstantial sums in advertising to attract fans who now were being turned away in their millions), it is difficult to fault the objective of the algorithm. In short, it was a clarion call for relevance. If brands could ensure they were relevant to their users (by listening and subsequently providing the content that users were asking for), then users were more likely to interact with that content - primarily by liking, commenting or sharing. In this case, EdgeRank would recognise that the content was

relevant and continue to provide it to those users. The flip side of that is that if content interactions are minimal, then EdgeRank will turn off brand content to users. That is a fairly clear message: listen and be relevant [3-5].

IV. FROM A LONG TERM PLANNING PERSPECTIVE

the strategy of simply listening and tailoring activities in an ad hoc way is likely to cause any number of marketing directors and in turn shareholders a number of sleepless nights. However, they would do well to have a little faith and ultimately, listen to what the consumer market is asking of them here and now.

V. THE RAPID PACE OF EVOLUTION OF SEARCH ENGINE OPTIMIZATION

The online world has morphed from a simple spam fest to an actual science that requires testing and tweaking on a regular basis. SEO or search engine optimization was rather simple in the early days of the World Wide Web. In the beginning, webmasters could build simple webpages and get them to the top of the search engines with little to no effort. Making money with these simple web pages was not difficult at all. Search engines had no structure or boundaries; therefore they could be manipulated to benefit the Webmaster while deceiving the web user.As people would do simple queries, the results were somewhat distorted. The search engines had no way of deciding which pages were more relevant. SEO was not really a science in the beginning. Everything was focused around using Keywords. If you found a keyword that had many searches, you would optimize that keyword to get your page to the top. As more pages began to get indexed, things began to change a little. More people were fascinated by the idea of making money online. People began to study heavily on how to get top rankings in the search engines. More people began building websites and focusing on free organic traffic. The competition for certain keywords began to become very competitive and difficult to rank for. SEO was the rage. As more pages were being built targeting simple keywords, SEO experts realized that they needed to focus on another strategy that allowed them to make money.The shocking part of this whole discovery was that these long tail keywords were a lot less competitive. As years went on SEO experts begin to teach students and clients that it's not about the single keyword anymore. The most promising keywords were the long tail keywords. Courses flooded the market about this newfound phenomenon. Once again SEO was the hottest topic on Internet Marketing forums [5-8].

VI. SEO AND ALGORITHM

As SEO experts began figuring out how search engines were ranking pages, Google decided they needed to adjust their algorithms to create a friendlier and more efficient user experience. Search queries were coming back with listings that were a little off topic. Many web surfers began to complain once again about how they were not satisfied with the search engine results. The engineers went back into the lab and began to come up with new ways to ranks web pages.SEO experts couldn't believe that Google changed the game up once again. Not only did they change the game, they changed it to where it stopped SEO experts in their tracks. Websites began to fail miserably. In fact this was during an era when many Dot.com corporations went out of business. SEO experts were sent scrambling trying to figure out what went wrong. They had to go back to the drawing board and figure out how Google was ranking web pages.Many Internet Marketing gurus begin to spend countless hours of testing and tweaking web pages trying to figure out the new formula. SEO had become more complex than ever before. Gone were the days of making money with very little effort. Making money online was now a science. Many marketers had given up, but the ones that stayed vigilant knew it would only be a matter of time before they figured things out.Finally months later a group of marketers had stumbled upon something. A few web pages that they had been testing were starting to show up in the top ten results of their targeted keywords. Were they on to something? As weeks and months went by, more data was pulled from these test sites and they could pretty much determine what Google and other search engines were taking into consideration when ranking web pages.The mystery had been solved. SEO experts could now begin to optimize their web pages and get them back into the top ten listings. These experts found interesting ranking criteria for ranking a webpage. When Google ranks web pages, they would take several things into consideration. First they would look at on-page and off-page optimization. The on-page optimization consisted of things such as keyword density, keywords in the title tag, Meta description tag, and the Meta keyword tags. They wanted you to link out to other authority sites. Similar keywords were to be sprinkled throughout the article. The keyword was to be bolded and italicized somewhere in the article. The name of the page should have the keyword somewhere within it. These were some of the determining factors when the looked at how they would rank a webpage.The off-page optimization wasn't as in depth as the on-page optimization. Off-page optimization mainly consisted of getting backlinks to your site. Backlinks were just links that were coming from other sites and linking back to your site. There were many ways that marketers could obtain these links. Article marketing, blog commenting, press releases, and

video marketing were just a few of the techniques that Internet Marketers were using to build backlinks to their sites.This new way of determining the ranking of web pages was a bit flawed to a certain degree. Many websites/blogs that provided little to no value were ranking in the top ten. When people began to do searches, they were presented with useless material that had little to no value. This went on for years. Quality sites were being outranked by these mini-sites built just for a monetary value. The online community was in an uproar over the value that search engines were providing.Google knew they had to do something to regain control of their search engine. Once again their engineers began collaborating with one another to come up with a solution to improve their search engine. Weeks and months went by and finally Google came up with a solution. This new algorithm would once again shake things up in the SEO world [9-11].

VII. GOOGLE ALGORITHM

As of last year, Google had two major algorithm updates. **Google Panda and Google Penguin.** With these updates, Google de-indexed many websites/blogs. Closed down several blog networks. Placed less value on certain types of links. Previous high quality links were now looked upon as no-follow links. Google's mission was to push quality websites back to the top. They were out to get rid of the spam sites and sites that provided little to no value. Once again they had become a search engine that people loved. Google was placing value on quality sites and rewarding them with free organic traffic. As you can see, Google has come a long way from their early days. Being in its early years; Google was a search engine that anyone could make money using minimal effort. Then in their next phase, Google changed things up and just by doing repetitive tasks like massive link building SEO experts could push their website/blog to the top of the search engines. Doing aggressive SEO tactics turned sites with no value to authority sites practically overnight [10-12].

VIII. CONCLUSION

As of today Google has become a search engine that is focused on quality content. Google now uses different metrics to determine if a site has content that is valuable and unique. Google loves sites that have several pages of content. Thin one and two page websites continue to be de-indexed from many search engines. Google likes to see content that is engaging to the reader causing them to stay on your site for longer periods of time. Social media now plays a huge role in ranking power. Google has raised the bar of excellence for many webmasters and SEO experts. Google has transformed back into a search engine that was created with the intent to please its readers by giving them what they want. What do the readers want? The readers want content that is unique, high quality, and provides tremendous value after performing a simple search.

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