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“VortexDNA is a universal prediction technology enabling the better forecasting of human behavior.”  
Branton Kenton-Dau,  
Director.

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### **ABOUT VORTEXDNA**

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VortexDNA is a predictive search technology with near universal application. It can be used to improve search results for products, jobs, social networks, movies, or any other online content. With its unique profiling of each user's purpose and values, and the ability to map that profile onto just about anything, VortexDNA has the potential to dramatically impact nearly every aspect of online life: improving the relevance of search results, optimizing advertising placement, improving product referrals and personalizing website content to make it more relevant to each unique visitor.

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For more information, visit  
**[www.vortexdna.com](http://www.vortexdna.com)**

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## **VortexDNA Technology increases Google™ search result click rates**

### **Background**

The exponential growth of the Internet as a medium has been based a continual increase in availability and relevance of content. Google, Inc. is at the forefront of this evolution; the company's relevant search results are the driver behind its worldwide targeted advertising and Internet search solutions.

The rewards for advancing Personalized Search are high. Safa Rashtchy (<http://tinyurl.com/2tohbw>) has estimated that a 10 percent gain in the click rate on advertising may mean a 5 percent increase in sales for Yahoo™. Don Dodge of Microsoft (<http://tinyurl.com/2nlgh3>) has calculated 1% of the search market to be worth \$1 billion. For Google™ the potential benefits are equally compelling.

### **The VortexDNA Approach**

At present Personalized Search technologies are focused in three areas: **content, demographics and history**. (<http://tinyurl.com/yr45ex>)

VortexDNA has developed relevance-calculating algorithms based on the idea that there is a fourth dimension to Personalized Search, based on **intention**. This dimension is calculated as a 7-digit 'genome' that captures the essence of a person's intention as shaped by their purpose, values and life focus.

VortexDNA's research suggested that incorporating this 'inner identity' dimension into search algorithms had the potential to improve the relevance of search results.

To test this theory, VortexDNA created an extension to the Firefox® browser, to track users' Google™ searches and the search result links they clicked on. By comparing the user's genome with the genomes of other users and their choice of search result links, the VortexDNA technology was able to assign 'Relevance Scores' to links.

A link was given a high Relevance Score for a user if people with similar genomes to the user were more likely to visit the link than other, less similar people.

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“VortexDNA is providing a new dimension in personalized search, where the relevance of search results is measured based on the user's intention – his or her 'inner identity'.”

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## More information

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Minimax Consulting, LLC ([www.MinimaxConsulting.com](http://www.MinimaxConsulting.com)) carried out an expert review of the algorithms VortexDNA used for this case study, finding them to be sound and suitable for their purpose.

## Results

VortexDNA used search result data from users of the extension to assess the efficacy of their approach to measuring relevance. The company counted the numbers of links with high and low Relevance Scores that users clicked on from their search results.

Factors that could have unfairly influenced the results were controlled for, including:

- Page Rank – users being more likely to click on links listed 1<sup>st</sup> or 2<sup>nd</sup> than those near the bottom
- Circled Links – users being more likely to click on links that the extension circled
- Bookmark Bias – users conducting the same search multiple times as a navigation shortcut
- Presentation Bias – if more (or fewer) high Relevance Score links were shown than low Relevance Score links, they would be clicked on more (or less) often

After accounting for these factors, VortexDNA applied a chi-squared test to calculate the expected counts for high and low Relevance Score links. If VortexDNA's algorithms were predictive, the high Relevance Score count would be greater than expected; if they were not predictive, the actual counts would match the expected counts.

In fact, the high Relevance Score count was 14% greater than expected, relative to the low Relevance Score count. This result was significant at the  $p < 0.05$  level.

When this result was translated into click rates, it showed that **users clicked on links with high Relevance Scores for them an extra 3% of the time compared to links with low Relevance Scores.**

To put this in perspective, if VortexDNA was used to enhance advertising link relevance for all Google™ users, a 3% increase in click rate would translate into a \$180 million increase in revenue (based on Rashtchy's estimate, and estimated advertising sales of \$12 billion for Google).

This case study demonstrates that VortexDNA's method of calculating relevance, based on a user's intention, is **predictive**, and therefore able to enhance current search optimization techniques.

