



## The Early Google Papers: Rajeev Motwani's Contributions To Search

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Larry Page and Sergey Brin have always given Professor Rajeev Motwani significant credit for helping them create what would eventually become Google. Today, as I say my personal goodbye to the man who helped so many people in our community, I'm also spending some time going back and reading some of the early papers that Rajeev co-authored describing how PageRank could become the basis for a new kind of search engine.

In a 1998 paper called "What Can You Do With A Web In Your Pocket" Brin, Motwani, Page and Terry Winograd say "...we have developed a global ranking of Web pages called PageRank based on the link structure of the Web that has properties that are useful for search and navigation..we have used PageRank to develop a novel search engine called Google, which also makes heavy use of anchor text."

An even earlier paper in 1998 that the four co-authored called "The PageRank Citation Ranking: Bringing Order to the Web" went into much more detail on PageRank. "In this paper, we take advantage of the link structure of the Web to produce a global "importance" ranking of every web page. This ranking, called PageRank, helps search engines and users quickly make sense of the vast heterogeneity of the World Wide Web."

Today much of what they wrote appears as little more than common sense. But in 1998 it was a revolutionary way of thinking. AltaVista, the leading search engine at the time, turned down the chance to buy Google for \$1 million, saying spam would make PageRank useless. Yahoo also declined to purchase Google, supposedly because they didn't want to focus on search, which only sent users away from Yahoo.com. So what seems obvious today was considered sort of meh by the leading technologists a decade ago.

The papers are embedded below.

**EXHIBIT 2044**

Facebook, Inc. et al.

v.

Google, Inc. et al.

<http://viewer.docstoc.com/>

What Can You Do With A Web In Your Pocket? -

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CrunchBase Information

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