Abstract

In this paper analyzes how the Google web search engine implements the PageRank algorithm to define prominent status to web pages in a network. It describes the PageRank
algorithm as a Markov process, web page as state of Markov chain, Link structure of web as Transitions probability matrix of Markov chains, the solution to an eigenvector equation and Vector iteration power method.

It mainly focus on how to relate the eigenvalues and eigenvector of Google matrix to PageRank values to guarantee that there is a single stationary distribution vector to which the PageRank algorithm converges and efficiently compute the PageRank for large sets of web Pages. Finally, it will demonstrate example of the PageRank algorithm.

References

- Lawrence Page, Sergey Brin, Rajeev Motwani, and Terry Winograd, The PageRank Citation Ranking: Bringing Order to the Web (1998).
- Sergio S. Guirrerhi, Markov Chains as methodology used byPageRank to rank the Web Pages on Internet (2010).
- Bill Coughran, Google’s index nearly doubles, Google Inc.(2004)
- Kristen Thorson. Modeling the Web and the computation of PageRank (Hollins University, 2004).
- MandarKale, Mrs.P.SanthiThilagam, DYNA-RANK: Efficient calculation and updation of PageRank(International Conference on Computer Science and Information Technology 2008)

Index Terms

Computer Science Information Retrieval
Keywords

PageRank  Markov chains  Power

method

Google matrix

Stationary distribution vector

Eigen Vector

Values