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AIMS CAMEROON SEMINAR
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Google Maths: Markov Chain \& PageRank

By

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Abstract:

Part of the magic behind Google is its PageRank algorithm, which quantitatively rates the importance of each page on the web, allowing Google to rank the pages and thereby present to the user the more important (and typically most relevant and helpful) pages firrst. PageRank algorithm ranks the importance of webpages according to an eigenvector of a weighted link matrix. Analysis of the PageRank formula provides a wonderful applied topic for a linear algebra in matrix algebra and Markov chains in probability theory. Our goal is to first present a breaf history of search engines and to explain one of the core ideas (eigenvalue, Markov chain) behind PageRank on how Google calculates web page rankings.

Keywords: linear algebra, PageRank, eigenvector, stochastic matrix mMarkov chain.