Entropy and search engines

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Entropy, a term loosely referring to the disorder of a physical system and infamously associated with the Second Law of Thermodynamics, wherein we know that it ultimately increases in any closed system, might be used to gauge something altogether different in the digital world – search engine optimisation.

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Search engine entropy is thus important not only for the efficiency of search engines and those using them to find relevant information as well as to the success of the companies and other bodies running such systems, but also to those who run websites hoping to be found and visited following a search. Search engine optimization (SEO) encompasses a multitude of strategies a website owner might employ in their efforts to ensure that their website reaches a higher position in the search engine results pages (SERPs).

The team explains how they are using entropy to add a metric to the number of index terms and their frequency, and how this influences the relevance calculation carried out by search engine algorithms. "The variation in term frequency either in processed web documents or in users' queries influences the relevance calculation," the team explains. "This," they suggest, "leads to an uncertainty associated with the document selection and its relevance calculation." As such, a measure of entropy can be made by varying the documents' term frequency or user's query term frequency to reveal how SEO might be carried out. The team has successfully tested their entropic approach to SEO against two of the most well-known search engines, Bing and Google.

More information: S. Lakshmi et al. Entropy a new measure to gauge search engine optimisation, *International Journal of Enterprise Network Management* (2018). DOI: 10.1504/IJENM.2018.10015770

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