# Abstract

Web search service is a vital way to find information on the web. However, not every piece of information found is relevant or useful. In order to improve search accuracy, most designers of the web search engines devote to working on search algorithms development and optimization. From literature, we realize that there are few open or flexible performance evaluation methods for web search service. The objective of this research is to develop a more flexible workload model based on generic construct for web search benchmarking and build an automated benchmarking environment of performance evaluation. Generic constructs are major components which can represent the web search algorithm. We collect and review literature related to web search algorithms and benchmarking. And we identify the generic constructs of key web search algorithms. The workload model consists of a page model, query model and control model. The page model describes the web page structure in web search. The query model defines some important criteria to query the web search engines. The control model defines the variables that used to set up the benchmark environment. Finally, we validate the research model through the prototype implementation.

**Keywords**: web search, benchmark, workload model, generic construct, performance, evaluation

# 中文摘要

網際網路搜尋是很重要的工具，可用以蒐集或尋找資訊。然而搜尋結果有時無法完全符合使用者的原意，所以網際網路搜尋引擎公司致力於發展更好的搜尋演算法，是為了增進搜尋結果的準確性並提高使用者對搜尋引擎的使用率，我們從探討的文獻中發現目前並沒有一個較彈性、開放的工具來評量網路搜尋的效能。本研究的目的就是希望能發展出一個較具彈性的負載量模型以針對網路搜尋進行效能評量。本研究著重在效能評量的負載量模型及測試套組的設計，我們希望透過以學名結構為基礎的方法擴展負載量模型的彈性，我們蒐集及研討幾個具代表性的網路搜尋演算法，並找出這些主要演算法的學名結構，以這些學名結構為基礎進行負載量模型的設計，負載量模型包含網頁模型、查詢模型與控制模型。最後，我們利用雛形實作來驗證本研究所提出的研究方法。

關鍵字：網路搜尋，績效評估，負載量模型，學名結構