

A Personalised Tourist Trip Design Algorithm for Mobile Tourist Guides

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Abstract

Mobile Tourist Guides evolve towards automated personalised tour planning devices [4]. The contribution of this paper is to put forward a combined artificial intelligence and metaheuristic approach to solve Tourist Trip Design Problems (TTDP). The approach enables fast decision support for tourists on small footprint mobile devices. The Orienteering Problem, which originates in the Operational Research literature [3], is used as a starting point for modelling the TTDP. The problem involves a set of possible locations having a score and the objective is to maximise the total score of the visited locations, while keeping the total time (or distance) below the available time budget. The score of a location represents the interest of a tourist in that location. Scores are calculated using the Vector Space Model [1], which is a well-known technique from the field of Information Retrieval. The TTDP is solved using a Guided Local Search meta-heuristic [5].

In order to compare the performance of this approach with an algorithm that appeared in the literature [2], both are applied to a real data set from the city of Ghent. A collection of tourist points of interest with descriptions was indexed and subsequently queried with popular interests, which resulted in a test set of TTDPs. The approach presented in this paper turns out to be faster and produces solutions of better quality.

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