Meta-Heuristic Approach for Resource Optimization in Mobile Real Time Video Traffic

Abstract

With the advent of Next generation wireless networks such as 4G, thousands of users will be able to share, create and access live video streaming with different content and characteristics, such as cricket matches and video surveillance using handheld mobile devices. Such services demand new mechanisms for assessing the quality levels of videos. It is imperative for the network operator to exercise stringent control over network parameters and deliver real time video with uncompromising quality in spite of hostile mobile environment. In this paper, Simulated Annealing is used as one of the meta-Heuristic approach for resource optimization in mobile real time video traffic. Other meta-heuristic methods such as Tabu search and genetic algorithms were used in the past. It is found that tabu search gets trapped in local minimum and genetic algorithms are computationally intensive. In this direction, simulated annealing has been found to exhibit effective global minimization with reduced number of iterations. Improvement in performance has been depicted through function plots such as Best function value, Best point, stopping criteria and temperature plot. The algorithm has been tested on standard video quality database available on university at Texas portal.

References
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Index Terms

Computer Science Communications
Keywords
Quality of Experience  Mean opinion score  Pseudo subjective quality assessment
Heuristic method

Simulated Annealing.