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Doi : 10.7321/jscse.v2.n4.1	
<p>Abstract . The topic of research in this paper is the determination of losses on a radial distribution feeder at a certain moment based on measurements of input complex power in the feeder and voltages in the farthest network node and power flow calculation. The presented method of DE used to find a virtual load of each node is based on the defined objective function. The value of the objective function using DE algorithm is obtained by calculation of power flow. The virtual load thus obtained is then used in the calculation of power flows on the basis of which total losses in a network are determined. The proposed method attempts to overcome the problems arising from the uncertainty of node loads in the network at some point in the evaluation of network losses. Evaluation of the proposed method was carried out by performing tests on the IEEE 123 node test feeder.</p>	
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Doi : 10.7321/jscse.v2.n4.2	
<p>Abstract . This paper focuses on the scalability problems for high-speed switches, and presents an integrated scheduling algorithm that supports unicast and multicast traffic efficiently in input-queued packet switches. Considering the tradeoff balancing complexity and performance, the proposed integrated algorithm performs without iteration, and reduces the scheduling overhead to $O(N)$ with a two-phase (request-grant) sequential scheduling for unicast and multicast traffic. In addition, it can be implemented in a fully distributed way, which is more suitable for high-speed switches. Simulation results show that the proposed algorithm exhibits a good performance in terms of throughput and average delay, at different traffic compositions under various traffic patterns.</p>	
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Doi : 10.7321/jscse.v2.n4.3	
<p>Abstract . The final approach phase of spacecraft rendezvous and docking is extremely important. In order to solve the problem of the real-time acquisition of the relative pose</p>	

between target and spacecraft in near distance ($<2\text{m}$), this paper established a binocular stereovision model, and proposed a Non-cooperative target relative pose measuring method based on stereo vision and RANSAC algorithm. Linear characteristic of Non-cooperative target was used to abstract feature points firstly, then stereo matching and three-dimensional restructuring were taken for the feature points, finally, an algorithm based on RANSAC algorithm was used to calculate the relative pose between the target and the camera. Therefore, errors were eliminated effectively, and the computation load was decreased by using disparity gradient constraint. Experimental results show that high accuracy and real-time results are the advantages of this method.

Optimization of Routes in Mobile Ad hoc Networks using Artificial Neural Networks 36-50

Seyed Saeed Sadat Noori, Seyed Ali Sadat Noori, Seyed Morteza Lari Baghal

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Abstract. An ad hoc network is a collection of wireless mobile hosts forming a temporary network without the aid of any established infrastructure or centralized administration. Infrastructures less networks have no fixed routers; all nodes are capable of movement and can be connected dynamically in an arbitrary manner. Nodes of these networks function as routers which discover and maintain routes to other nodes in the network. Topological changes in mobile ad hoc networks frequently render routing paths unusable. Such recurrent path failures have detrimental effects on quality of service. A suitable technique for eliminating this problem is to use multiple backup paths between the source and the destination in the network. Most proposed on-demand routing protocols however, build and rely on single route for each data session. Whenever there is a link disconnection on the active route, the routing protocol must perform a route recovery process. This paper proposes an effective and efficient protocol for backup and disjoint path set in ad hoc wireless network. This protocol converges to a highly reliable path set very fast with no message exchange overhead. The paths selection according to this algorithm is beneficial for mobile ad hoc networks, since it produce a set of backup paths with more high reliability. Simulation experiments are conducted to evaluate the performance of our algorithm in terms of route numbers in the path set and its reliability. In order to acquire link reliability estimates, we use link expiration time (LET) between two nodes. In another experiment, we save the LET of entire links in the ad-hoc network during a specific time period, then use them as a data base for predicting the probability of proper operation of links. Links reliability obtains from LET. Prediction is done by using a Multi-Layer Perceptron (MLP) Network which is trained with back propagation error algorithm. Experimental results shows the MLP net can be a good choice to predict the reliability of the links between the mobile nodes with more accuracy.

Keyword : Mobile Ad Hoc Networks, Reliability, Routing,; Artificial neural networks

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