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Multi-objective optimization for balanced Q-coverage problem in under-provisioned directional sensor networks

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Abstract

This study investigates the target Q-coverage problem in under-provisioned directional sensor network (DSN). The coverage imbalance is a serious issue in under-provisioned networks. In Q-coverage, some targets may get the required coverage while others may be partially covered or even not covered. We have proposed a new balancing index Q_bI to measure the balanced coverage of the network. In this study, we have modified four existing multi-objective genetic algorithms (MOGAs), strength Pareto evolutionary