

Group testing algorithms for inaccurate sensor detection: theoretical results and simulations

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In this paper we present new group testing algorithms which can be used for malfunctioning wireless sensor detection. Instead of separate tests on each sensor, which can be expensive and ineffective, we test a set of sensors by request them to send a special signal at the same time. The received signal is inaccurate if and only if at least one of the sensors is defected. The goal is to find a predefined number of malfunctioning sensors using the minimum number of tests. We present theoretical results, determine the maximum and the average number of test required by the algorithms and show simulation results. The performance of our algorithms are close to the theoretical lower bound.

References

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