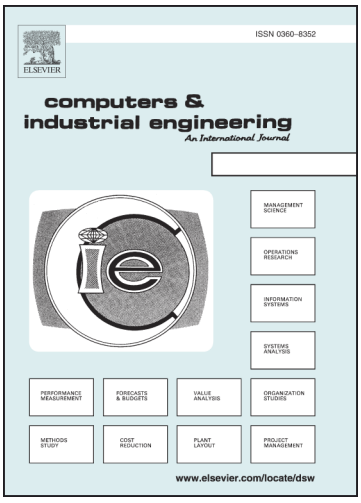

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Abstract

In this study, the determination of an artillery firing sequence is considered in order to minimize the enemy threat to friendly forces prior to the conclusion of the firing operation. A deterministic model and robust counterpart are developed to deal with the deterministic and uncertain enemy threat levels, respectively. In both cases, the optimal strategy is demonstrated to be firing based on the threat removal rate per unit time. Moreover, a two-phase approach is developed based on the concept of cardinality-constrained uncertainty. In this approach, the firing sequence is determined in the first phase and then, in the second phase, the robustness of the uncertain factors is adjusted by using the modified problem to evaluate the total threat exposure of friendly units to the enemy. A set of problems is generated and tested using the proposed model and strategy. The results of numerical