Review of: "A Novel Variable Neighborhood Search Approach for Cell Clustering for Spatial Transcriptomics"

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Potential competing interests: No potential competing interests to declare.

1. A primary concern is the high number of control parameters in the presented VNS method—eight parameters, as indicated in Section “Input parameters”. While novel optimization methods tend to reduce the number of parameters or make the optimization procedure parameter-less, having so many control parameters makes it nearly impossible to find the appropriate configuration. Each test problem must be individually set, which is impractical.
2. An analysis of the time complexities of the presented VNS procedure and its components (such as neighborhood size, fitness change estimation, etc.) is necessary.
3. A descriptive analysis of the behavior of the proposed VNS is required: a study of the impacts of components, design options, and control parameters on overall performance, along with an analysis of convergence curves.
4. Comparison against standard metaheuristic algorithms (such as Iterated Local Search [ILS] and Genetic Algorithms [GAs]) is essential.