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A Population-Based Fast Algorithm for a Billion-Dimensional Resource Allocation Problem with Integer Variables

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**Highlights**

- A computationally fast heuristic algorithm for solving a specific integer linear programming problem
- Two popular point-based algorithms cannot handle 2,000 variables
- Proposed methods handle one billion variable version of the problem
- A polynomial-time complexity on a wide range of variables (50 thousand to one billion)
- Parametric study reveals working principles of proposed algorithm

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