

A membrane-inspired algorithm with a memory mechanism for knapsack problems

基于带记忆机制的膜启发算法 求解背包问题

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- Membrane computing is aimed to abstract ideas from the structure and function of living cells to construct computing models (called P systems) and intelligent algorithms (membrane-inspired algorithm)
- Typical frameworks used in membrane-inspired algorithms are the *cell-like framework* and *one-level framework*
- Under the typical frameworks, feasible solutions may easily converge to a single point once a better solution is found. In order to enhance the capacity of global searching, more efficient frameworks should be managed

RMA



**Test on solving
the knapsack
problems**

Framework of the RMA:

1. Two kinds of cells, computational cells and memory cells, are used
2. A particular ring topology is used to connect these two kinds of cells

Rules used in the RMA:

1. For computational cells: making rules, repairing rules, updating rules, rewriting rules, and communication rules
2. For memory cells: rewriting rules and communication rules