

Minkowski sum problems - Theory and definitions

Generator sets and upper bounds.

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Abstract

1. Introduction

2. Literature review

Review of relevant literature

1. Minkowski sum problems.
2. Kerbérénès phd.
3. filtering problems
4. Coupled problems.

3. Prerequisites/ methodology

3.1. General MO

- Relations (sets and vectors)
- Bound sets.
- Operator notation: $\oplus, \ominus, \bigoplus \dots \times$
- Notation $\mathcal{X}, \mathcal{Y}, f, \mathcal{X}_E, \mathcal{Y}_N \dots$

3.2. Minkowski Sum Problem

MSP definition for general p and S

4. Empirical study

***RQ? Formulate major research questions.

Consider sweep methods.

- Generate a new point from a subproblem and update all generator sets and upper bound sets.
- Periodically generate a point for each subproblem whereafter all generator sets and upper bound sets are updated.
- Sweep: generate all supported non-dominated points for each subproblem whereafter all generator sets and upper bound sets are updated.

4.1. Empirical study of Generator sets

When are generator sets small relative to the non-dominated sets.

4.2. Empirical study of Generator upper bound sets

When are upper bound sets from generators 'good'. (make precise).

Test cite (Adelgren et al., 2018)

References

- N. Adalgren, P. Belotti, A. Gupte, Efficient storage of pareto points in biobjective mixed integer programming, *INFORMS Journal on Computing* 30 (2018) 324–338.