

Table 1: Summary of Metrics Used for Performance Comparisons in This Paper

Metric	Description	Reference
C factor	Measure of relative dominance of solutions generated by one algorithm over another	Zitzler and Thiele (1999)
$V1$	Measure of the coverage including the known best extreme points	Ranjithan et al. (2001)
$V2$	Measure of the coverage excluding the known best extreme points	Ranjithan et al. (2001)
<i>Spread</i>	Measure of the maximum range covered by the noninferior solutions	Ranjithan et al. (2001)
D factor	Measure of the degree of dominance of solutions generated by one algorithm over another	Figure 2

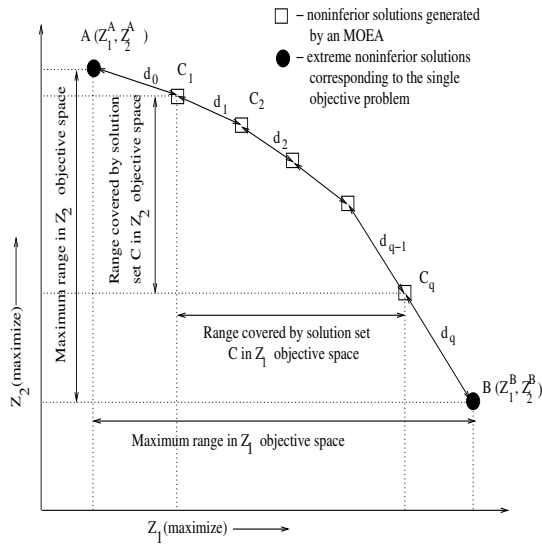


Figure 1: An Example of Two-objective Noninferior Tradeoff to Illustrate the Computation of metrics. d_i represents the distance between two adjacent solutions

$d_i = \text{Max} \{d_{ij} : j = 1, 2, \dots, m\}$, where m is the number of solutions it dominates in the set NDS_{MOEA-2} . Then the following aggregate value $D_{1/2}$ is used to define the degree of dominance of MOEA-1 over MOEA-2.

$$D_{1/2} = \frac{\sum_{i=1}^N d_i}{N} \quad (2)$$

where N is the total number of solutions in the set NDS_{MOEA-1} . The corresponding value for $D_{2/1}$ can be computed similarly.

A summary of the performance metrics used in this paper for the comparison of different algorithms is shown in Table 1. These metrics, although described here for only a two-objective case, are extended for the higher dimensional MO problem presented in this paper.

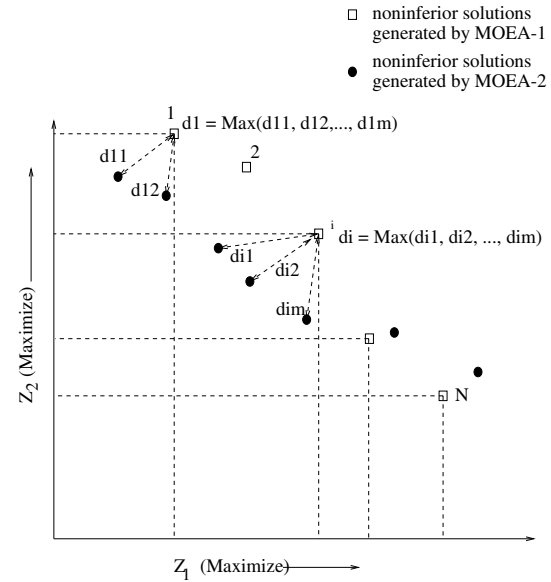


Figure 2: An Example of Two-objective Noninferior Tradeoff to Illustrate the Computation of D factor