

## 1 Introduction

Talk about some introductory stuffs and do some literature reviews to set the scenario, also discuss basic issues like “what is MOP” etc.

## 2 An Alternative Interpretation for Opposition

As we have seen in the previous section, mostly the idea of *opposition* is employed as the incorporation of new solutions with a certain kind of *opposite traits* into the existing population. Such *traits* could be interpreted according to different perspectives, an *opposite* solution could be – i) the one with an opposite representation (w.r.t the current best solution), ii) solutions with the opposite values from the other end of the variable bounds (i.e. real valued optimization). However,

## 3 Limitations with Canonical MOP Algorithms: NSGA-II

## 4 The Basic Algorithm: Opposite Point Generation Scheme

## 5 Finding the Extreme Points

## 6 Experiments with the Multi-objective Problem Sets

### 6.1 ZDT Problem Set

### 6.2 DTLZ Problem Set

### 6.3 Constrained Problems

### 6.4 Rotated Problems

## 7 Comparative Analysis

### 7.1 NSGA-II Equipped with Extreme Points

### 7.2 NSGA-II Compensated for the Extra Function Evaluations

### 7.3 Same Algorithm without the Deterministic Opposite Point Generation

## References

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<sup>1</sup>Responsible for the GP module

<sup>2</sup>Responsible for the Simulator module