

M2 AIC

TC2: Introduction to Optimization

Black-Box Optimization Benchmarking
with the COCO platform

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Multiobjective Optimizer adaptive IBEA (ϵ -indicator)

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Introduction

The algorithm

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Bibliography

- steps description

Binary quality indicators

Introduction

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Bibliography

Overview of IBEA

Selection and variation

Mating selection and mutation

Recombination

Computer specifications and batch options

- Intel(R) Core(TM) i7-7500U CPU @ 2.70GHz
- Quad core CPU with 16GB RAM

Everything ran with a budget of 100

- Three batches for dimensions 2, 3, 5, 10, 20
- First batch running alone, and two others together
- One batch for dimensions 40

Options chosen to run the algorithm

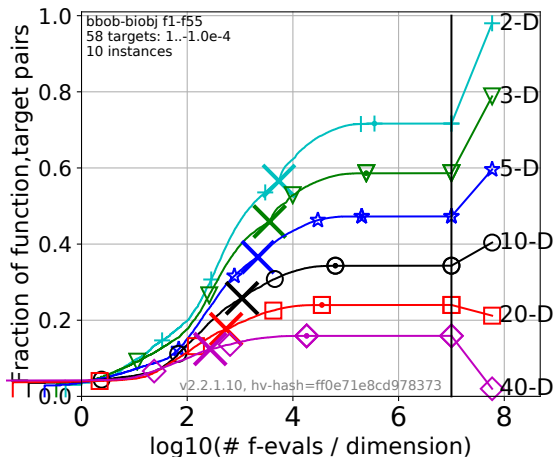
- Population size : 100
- Maximum number of generation : 100
- Scaling factor : 0.05
- Mutation rate : 0.01
- Recombination and mutation μ : 1
- Population initialization in range $(-5, 5)$

Dimension \ Batch	2	3	5
Batch 1 on 3	6.0e-04	6.3e-04	8.1e-04
Batch 2 and 3 on 3 run simultaneously	8.6e-04	8.6e-04	9.1e-04
	8.3e-04	8.4e-04	8.9e-04

Dimension \ Batch	10	20
Batch 1 on 3	8.3e-04	1.1e-03
Batch 2 and 3 on 3 run simultaneously	1.1e-03	1.3e-03
	1.0e-03	1.3e-03

Dimension \ Batch	40
Whole test suite	4.2e-03

Results



Results analysis

- Comparatively better in higher dimensions
- Results globally good for an EMOA
- More budget could have given better results
- A better initialization of population could lead to a sharper increase at the beginning

NSGA 2

Random Search

conclusion sur algo, implémentation, idées d'ouverture ?

Non-exhaustive bibliography