CEC 2015 Competition on on Learning-based Real-Parameter Single Objective Optimization

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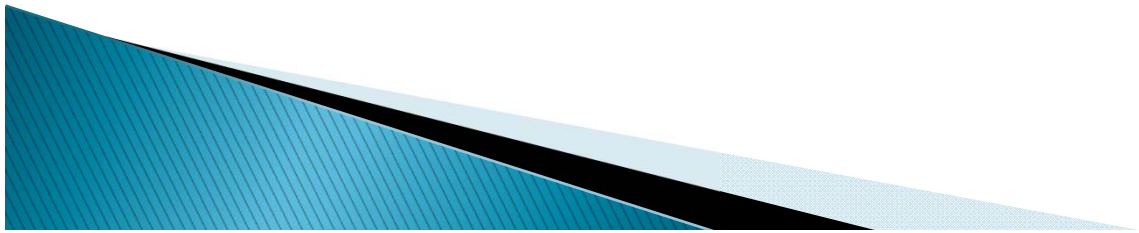
Introduction

- CEC 2015 Competition on Learning-based Real-Parameter Single Objective Optimization ----including 15 benchmark functions
  http://www.ntu.edu.sg/home/EPNSugan/index_files/CEC2015

- J. J. Liang, B. Y. Qu, P. N. Suganthan, Q. Chen, "Problem Definitions and Evaluation Criteria for the CEC 2015 Competition on Learning-based Real-Parameter Single Objective Optimization",Technical Report, Computational Intelligence Laboratory, Zhengzhou University, Zhengzhou China and Technical Report, Nanyang Technological University, Singapore, Nov 2014.



Introduction

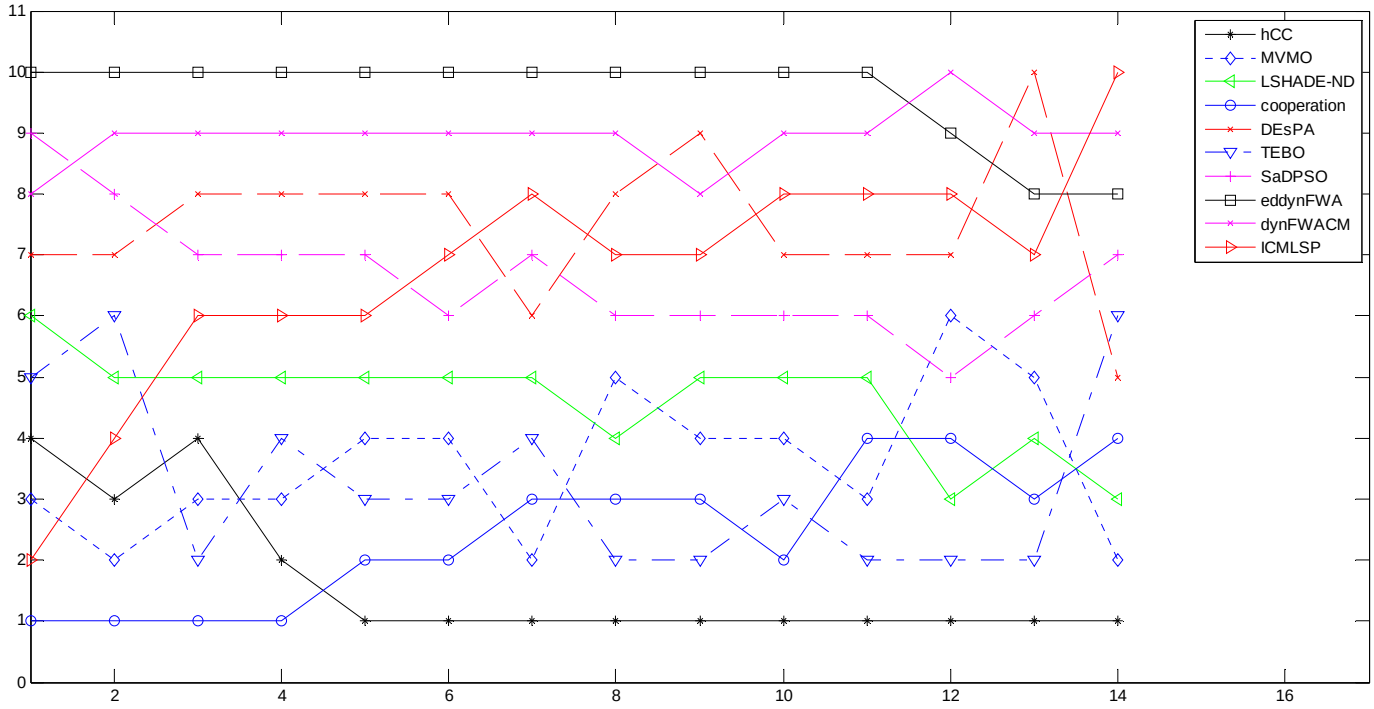
Summary of the CEC'15 Learning-Based Benchmark Suite

	No.	Functions	$F_i^*=F_i(x^*)$
Unimodal Functions	1	Rotated High Conditioned Elliptic Function	100
	2	Rotated Cigar Function	200
Simple Multimodal Functions	3	Shifted and Rotated Ackley's Function	300
	4	Shifted and Rotated Rastrigin's Function	400
	5	Shifted and Rotated Schwefel's Function	500
Hybrid Functions	6	Hybrid Function 1 (N=3)	600
	7	Hybrid Function 2 (N=4)	700
	8	Hybrid Function 3(N=5)	800
Composition Functions	9	Composition Function 1 (N=3)	900
	10	Composition Function 2 (N=3)	1000
	11	Composition Function 3 (N=5)	1100
	12	Composition Function 4 (N=5)	1200
	13	Composition Function 5 (N=5)	1300
	14	Composition Function 6 (N=7)	1400
	15	Composition Function 7 (N=10)	1500
Search Range: $[-100,100]^D$			

Algorithms

Paper ID	Algorithm	Title
15031	SPS-L-SHADE-EIG	A Self-Optimization Approach for L-SHADE Incorporated with Eigenvector-Based Crossover and Successful-Parent-Selecting Framework on CEC 2015 Benchmark Set
15096	TEBO	Tuning Maturity Model of Ecogeography-Based Optimization On CEC 2015 Single-Objective Optimization Test Problems
15170	MVMO	Testing MVMO on Learning-based Real-Parameter Single Objective Benchmark Optimization Problems
15230	LSHADE-ND	Neurodynamic Differential Evolution Algorithm and Solving CEC2015 Competition Problems
15287	ICMLSP	An Improved Covariance Matrix Leaning and Searching Preference Algorithm for Solving CEC 2015 Benchmark Problems
15460	SaDPSO	A Self-adaptive Dynamic Particle Swarm Optimizer
15473	cooperation	Cooperation of Optimization Algorithms: A Simple Hierarchical Model
15485	hCC	Hybrid Cooperative Co-evolution For The CEC15 Benchmarks
15527	ABC-X-LS	A Configurable Generalized Artificial Bee Colony Algorithm with Local Search Strategies
15598	dynFWA	Dynamic Search Fireworks Algorithm for Solving CEC2015 Competition Problems
15620	DEsPA	A Differential Evolution Algorithm with Successbased Parameter Adaptation for CEC2015 Learning based Optimization
15642	dynFWACM	Dynamic Search Fireworks Algorithm with Covariance Mutation for Solving the CEC 2015 Learning Based Competition Problems
15667	HumanCog	HumanCog: A Cognitive Architecture for Solving Optimization Problems

10D


hCC
MVMO
LSHADE-ND
cooperation
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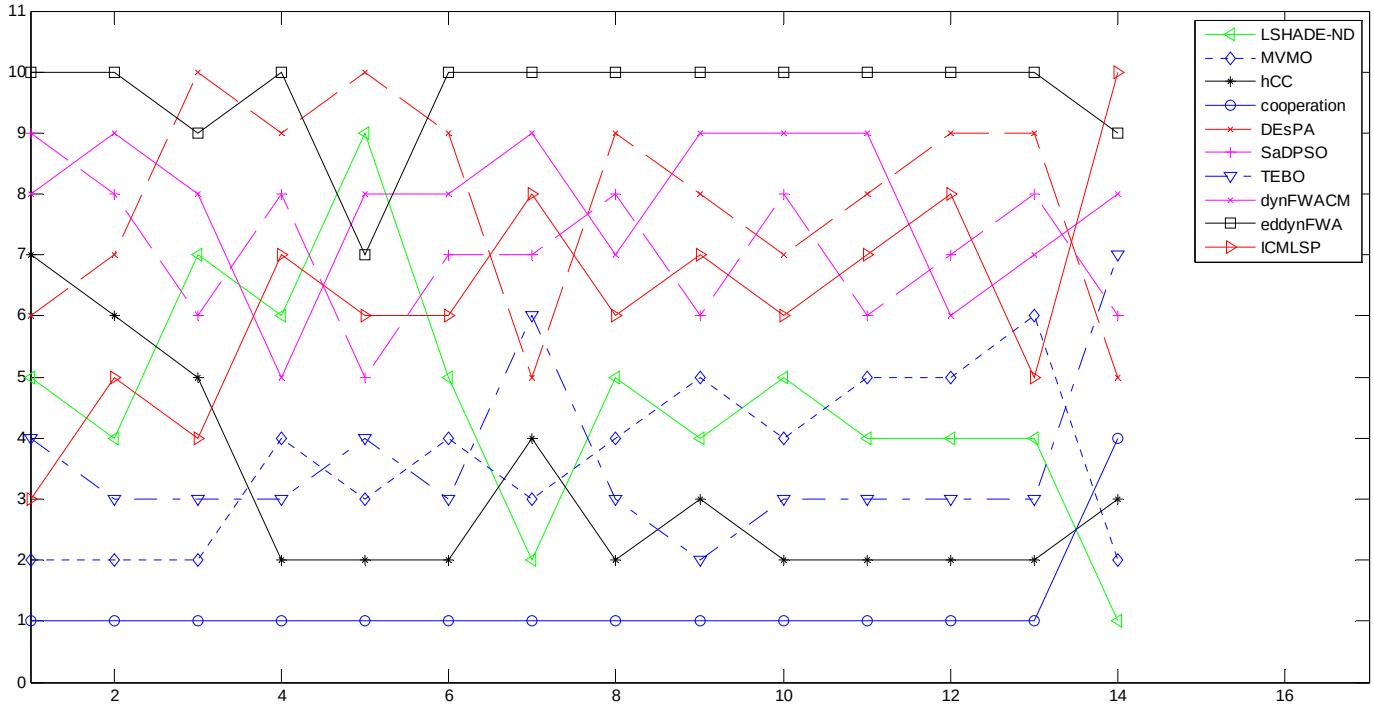
30D


LSHADE-ND
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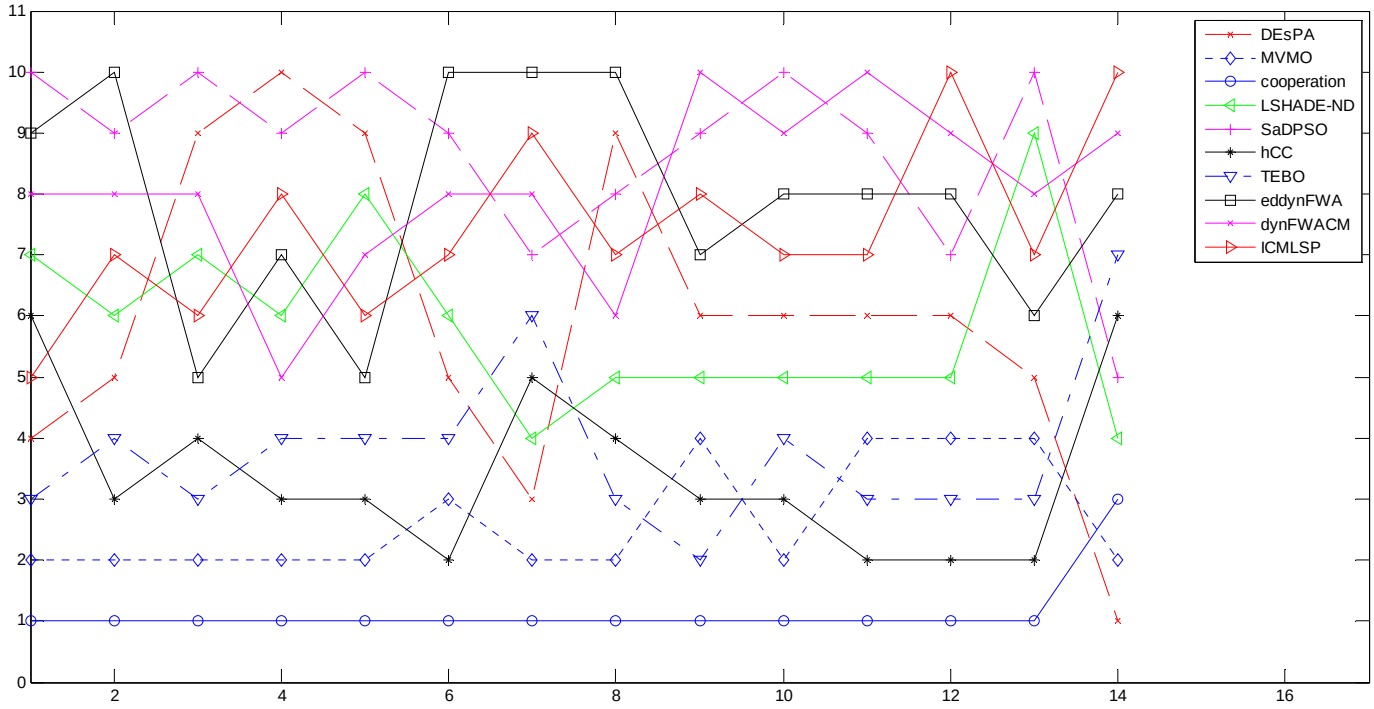
50D


DEsPA
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cooperation
LSHADE-ND
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dynFWACM
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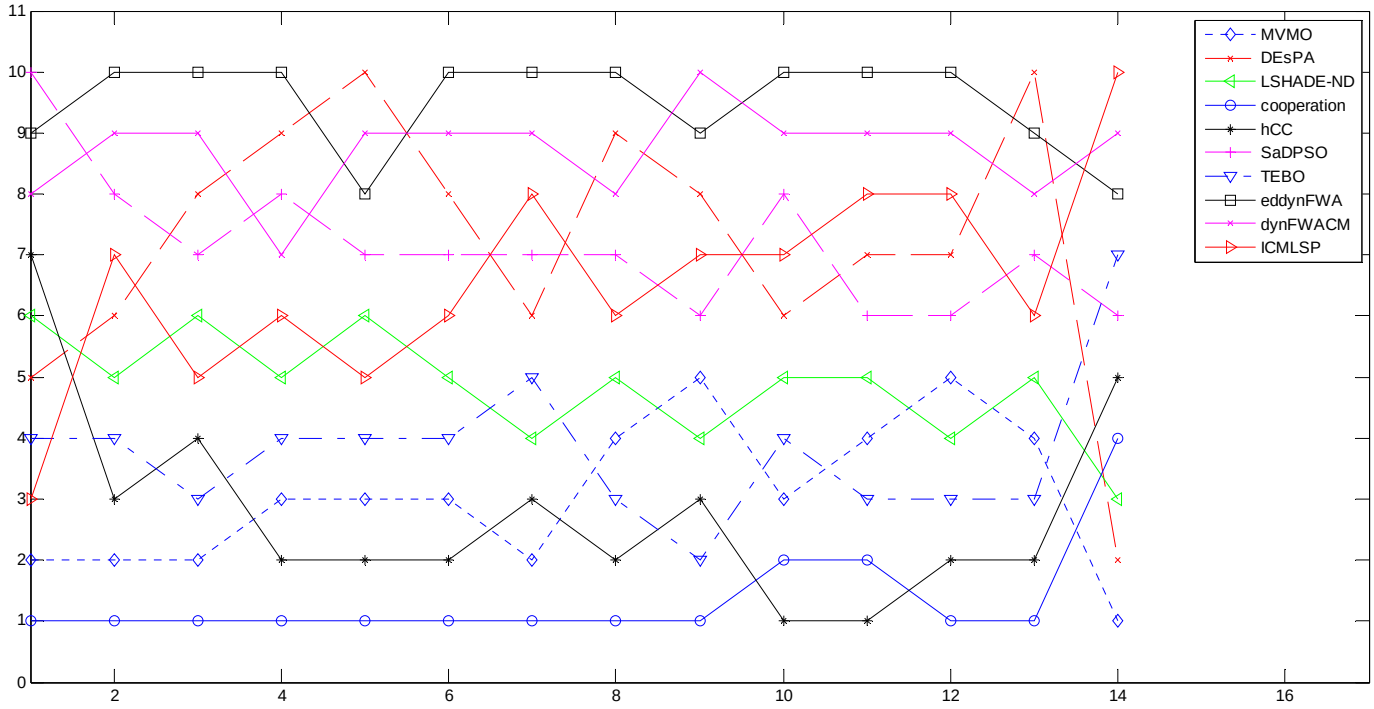
10D+30D+50D


MVMO
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cooperation
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Draft Ranking

Paper ID	Algorithm	10D	30D	50D	10D+30D+50D
15031	SPS-L-SHADE-EIG	1	1	2	1
15096	TEBO	8	9	9	9
15170	MVMO	3	3	4	3
15230	LSHADE-ND	3	3	4	3
15287	ICMLSP	12	12	12	12
15460	SaDPSO	9	8	7	8
15473	cooperation	6	7	5	7
15485	hCC	2	5	8	6
15527	ABC-X-LS	7	4	3	4
15598	dynFWA	10	11	10	10
15620	DEsPA	5	6	1	2
15642	dynFWACM	4	6	11	10

* ONLY use the mean values.
Results of 15031 and 15527 are from the papers.