ALGORITHMS AND DESIGN ANALYSIS: COURSE PROJECT

Shahrukh Zarir Pranav Yadav Ebrahim Merchant

3D MAPS OF 2 FUNCTIONS PAGES 2-4

PERFORMANCE PLOTS PAGES 5-22

COMPARISION OF DE AND PSO PAGES (WITH SOLUTION) 23-25

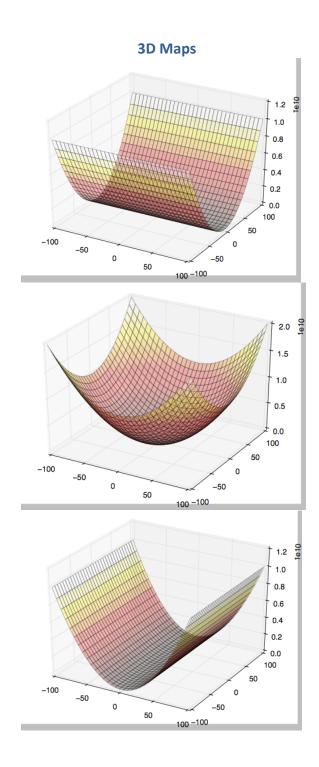
IMPLEMENTATION CODE 26-END

3D Maps of 2D Functions

Benchmark FunctionsHigh Conditioned Elliptic Function

Bent Cigar Function

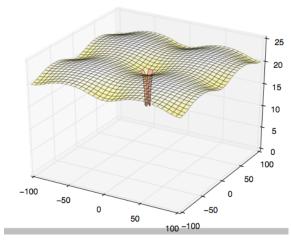
Discus Function



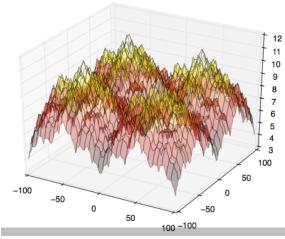
Rosenbrock's Function

1.2 \(\frac{1}{2} \) 1.0 \(0.8 \) 0.6 \(0.4 \) 0.2 \(0.0 \) 100 \(-50 \) 0 \(50 \) 100 \(-100 \)

Ackley's Function



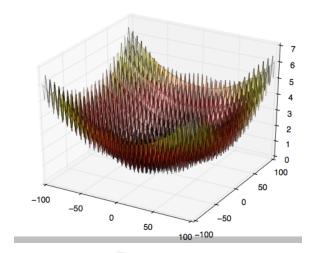
Weierstrass Function

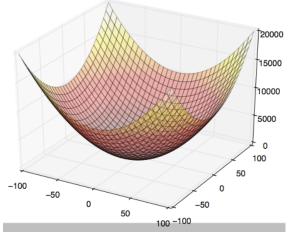


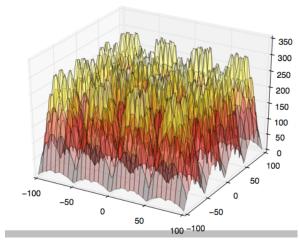
Griewank's Function

Rastrigin's Function

Katsuura Function





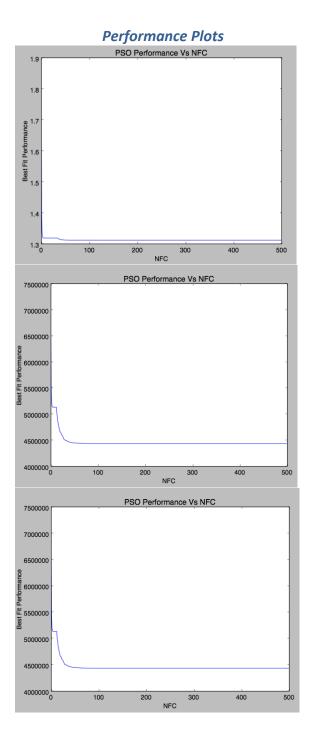


Performance Plots Particle Swarm Optimization Function (D=10)

High Conditioned Elliptic Function

Bent Cigar Function

Discus Function

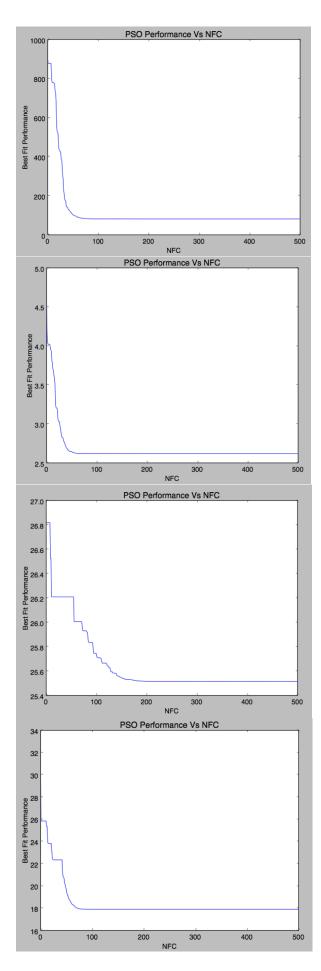


Rosenbrock's Function

Ackley's Function

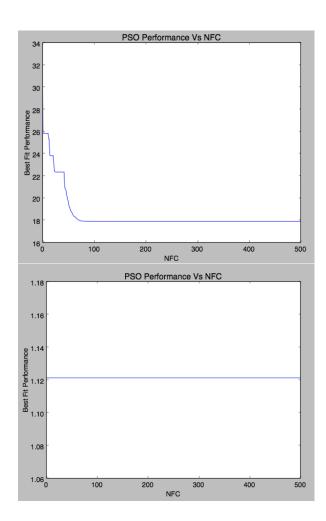
Weierstrass Function

Griewank's Function

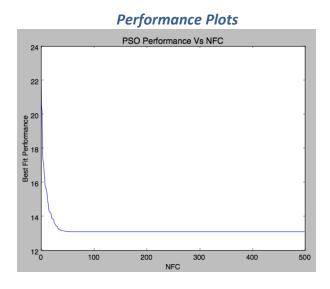


Rastrigins Function

Katsuura Function



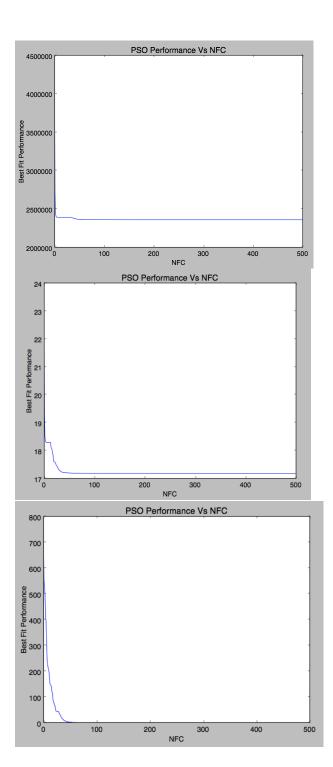
Function (D=30)
High Conditioned Elliptic Function



Bent Cigar Function

Discus Function

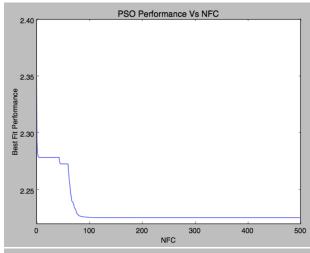
Rosenbrock's Function

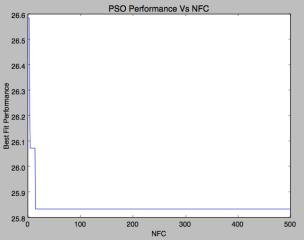


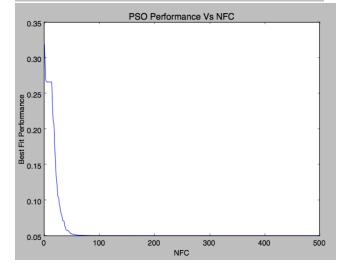
Ackley's Function

Weierstrass Function

Griewank's Function

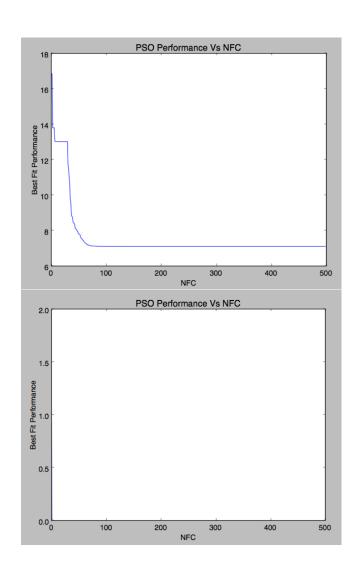




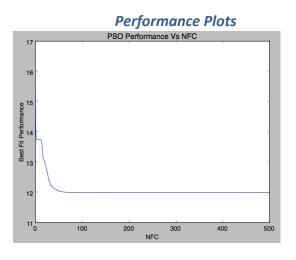


Rastrigins Function

Katsuura Function



Function (D=50)
High Conditioned Elliptic Function

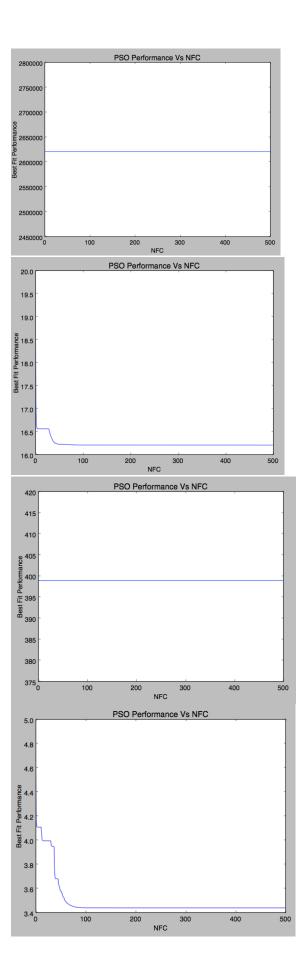


Bent Cigar Function

Discus Function

Rosenbrock's Function

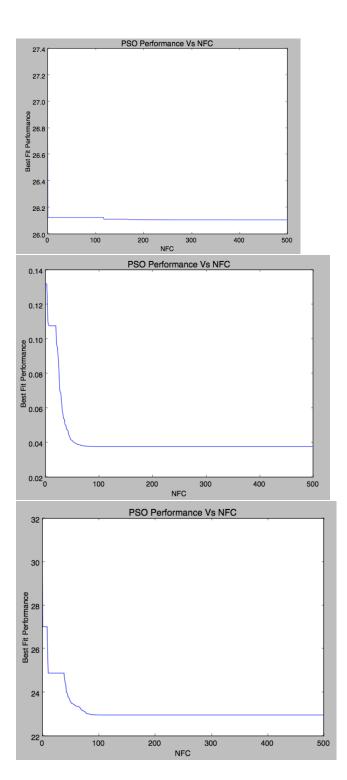
Ackley's Function



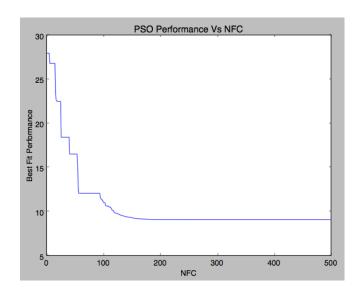
Weierstrass Function

Griewank's Function

Rastrigins Function



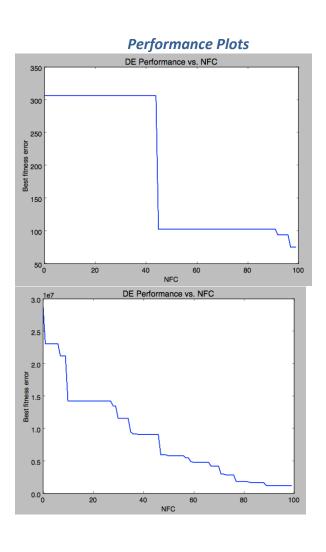
Katsuura Function



Differential Evolution Function (D=10)

High Conditioned Elliptic Function

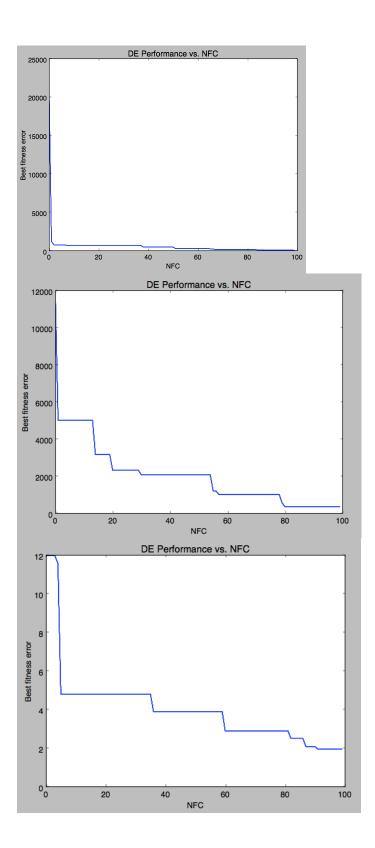
Bent Cigar Function



Discus Function

Rosenbrock's Function

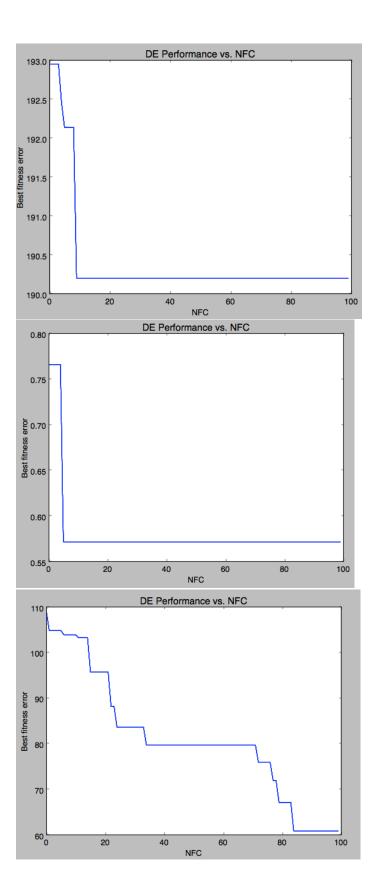
Ackley's Function



Weierstrass Function

Griewank's Function

Rastrigins Function



Katsuura Function

DE Performance vs. NFC

400

350

200

200

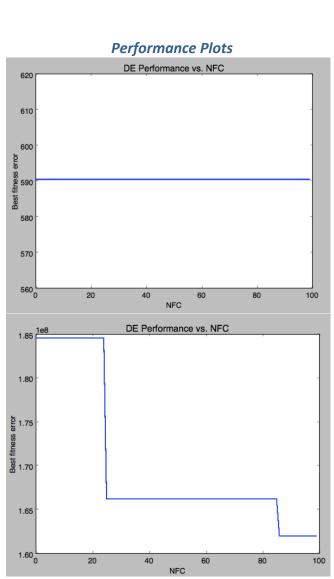
400

60

80

100

Function (D=30)
High Conditioned Elliptic Function

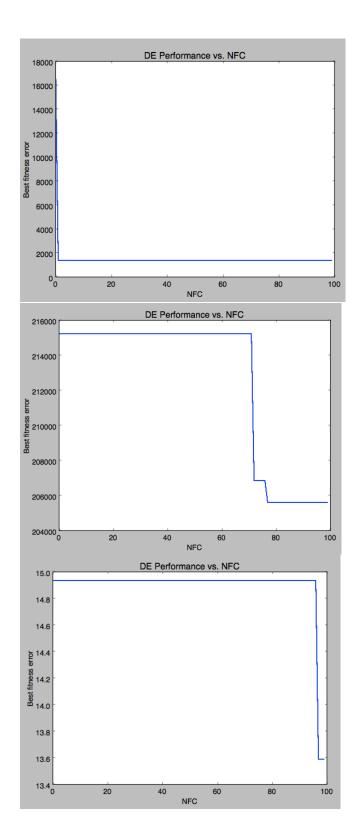


Bent Cigar Function

Discus Function

Rosenbrock's Function

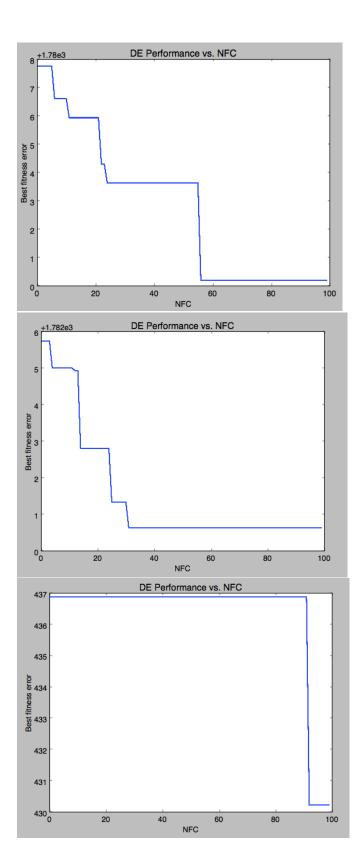
Ackley's Function



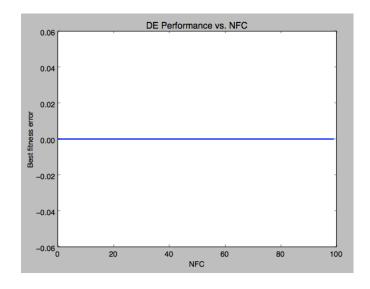
Weierstrass Function

Griewank's Function

Rastrigins Function



Katsuura Function



Function (D=50) High Conditioned Elliptic Function

Performance Plots DE Performance vs. NFC 6000 5000 한 4000 Best f 2000 1000 20 40 80 100 DE Performance vs. NFC 3.20 Te8 3.15 3.10 2.95 2.90 2.85

NFC

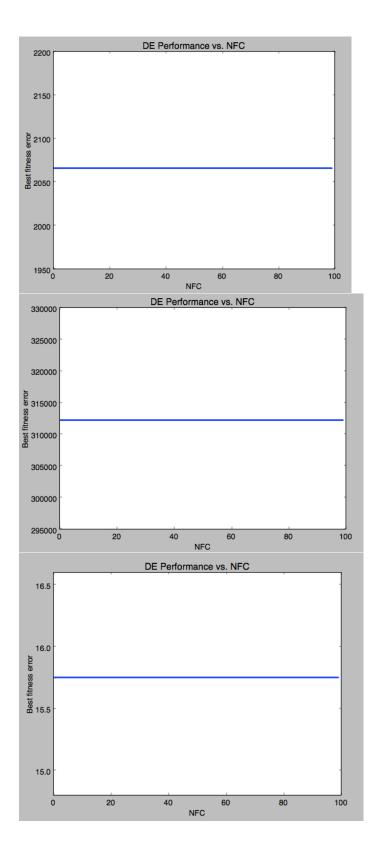
100

Bent Cigar Function

Discus Function

Rosenbrock's Function

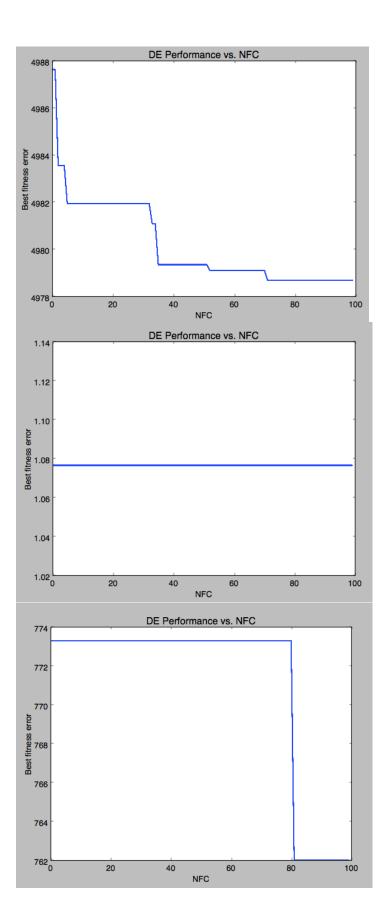
Ackley's Function



Weierstrass Function

Griewank's Function

Rastrigins Function



Katsuura Function

